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The destination of Iowa's commercial oats

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The Destination of Iowa's Commercial Oats

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CONTENTS

SUMMARY

IOWA'S commercial oats represent 26 percent of the total state production. The shipments amount to 56 million bushels.

Of the total loadings 74 percent originate in 25 of the 99 counties.

Iowa's primary markets receive 59 percent of the first billing shipments. Cedar Rapids, the leading market for Iowa's commercial oats, takes 38 percent of the total of rail shipments.

For the 7 years studied (1924-25 to 1930-31) Cedar Rapids has shown a marked increase in receipts, while Chicago, Milwaukee and some of the other out-of-state markets have shown rather striking decreases in receipts.

Ninety-six percent of the reshipments from Iowa's primary markets go outside the state, 58 percent to out-of-state terminal markets and 38 percent to out-of-state consuming areas.

The quantity and quality of feed grain produced in neighboring states are the most important factors in determining the direction of commercial oat movement from Iowa. Especially is this true of the reshipments from Iowa's primary markets.

The large volume of oats going to market direct from the threshing machine places oats among the cash grains. Twenty-three percent of the commercial oats are loaded for shipment during August. By Oct. 31, or the close of the first quarter of the season, 45 percent have left the local shipping point.

Some areas of the state hold a larger percentage of their total commercial oats until the second half of the marketing season than do other areas. This practice normally yields a larger gross return and if managed correctly will show a larger net return.

The southern outlet has become an increasing factor in the movement of Iowa's oats. Not only has the volume of oat shipments to the southern terminals increased during the 7-year period, but the direct movement to local feeding areas in the South has also increased.

The local shipping point is limited in the distribution of its shipments by the railroad facilities and the demands from the neighboring territory.

The Destination of Iowa's Commercial Oats[1]

By Ronald C. Bentley[2]

The major part of Iowa's commercial oats is produced in the north central and northwestern counties of Iowa. Some of these counties ship annually an average of from 60 to 69 percent of their total production. Three-fifths of the 56 million bushels loaded for commercial shipment reach Iowa's primary markets on first billing. The seasonal flow of oats to market resembles more nearly that of wheat than of corn.

These facts evolve from a study of carload shipments of oats from each shipping point in Iowa and a further analysis of the destination of from 58 to 83 percent of these total loadings. Although the data covering destination are not as complete as those showing volume of movement and include only 6 of the 19 railroads operating within the state, the sample is believed to be adequately representative of the total movement.

SOURCE OF DATA[3]

The railroads operating within the state have made available the basic data for this study. Since January, 1924, monthly reports of carload shipments of corn and oats for every station in Iowa have been received by the author through the division agents of the different railroads in the state. Further, seven of the railroads have prepared or made available reports on first billing shipments from their local stations. These data make it possible to show rebillings from Iowa's primary markets, which give a satisfactory picture of final destinations.

The accompanying table identifies the railroads and years for which complete figures are available showing destination of oat shipments.

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[1] This publication, reporting on Project No. 8 of the Iowa Agricultural Experiment Station, is the second of a series of three bulletins dealing with the commercial movement of Iowa's corn and oat crops. The first, Bulletin 318, describes the geographic distribution of Iowa's surplus corn, pictures the ultimate destination of a large part of the commercial corn and shows the nature of the seasonal movement for first billing shipments to market. A third bulletin will take up the origin of feed grains that are shipped into the deficit areas of Iowa.

[2] The writer is indebted to Prof. P. L. Miller, under whose direction this manuscript was prepared; also to Profs. Frank Robotka, T. W. Schultz and Geoffrey Shepherd for helpful suggestions and criticisms of the manuscript.

[3] The author wishes to express his appreciation of the excellent cooperation given by the railroad officials in preparing and making available their records.

Railroad	Year
Chicago & North Western	1923-24 to 1930-31
Chicago, Rock Island & Pacific	1923-24 to 1930-31
Minneapolis & St. Louis	1923-24 to 1930-31
Chicago, Burlington & Quincy	1925-26 to 1930-31
Chicago, Milwaukee, St. Paul & Pacific	1926-27 to 1930-31
Chicago & Great Western	1927-28 to 1930-31
Illinois Central	One year—1927-28

PART I. VOLUME AND ORIGIN OF IOWA'S COMMERCIAL OATS

Oats, like corn, are a crop in which Iowa is first among the states in total production. Government estimates for the years 1922 to 1931 show that Iowa produces 16.7 percent of the total U.S. crop and Minnesota, the nearest competitor, 11.8 percent. More than one-fourth of the total crop is loaded into box cars for commercial shipment (in some counties nearly three times this percentage of the local production is shipped), and since these shipments come so early in the season, there is little wonder that oats are termed the cash grain crop in certain areas of the state.

This does not tell the complete story of Iowa's commercial sales of oats. Trucking has become a factor in grain and feed movements just as it has with livestock. No estimates are available on the quantity of oats or corn trucked from surplus to deficit areas, but from observation and conversation it seems there is a considerable volume of both grains moving in this manner in certain feeding sections.

EXTENT TO WHICH IOWA'S OATS ENTER COMMERCIAL CHANNELS

Records of the past 8 years show that on the average approximately one-fourth of the total production of oats is loaded into box cars for commercial movement. This represents an average annual movement of 56 million bushels which is 7 million less than the annual shipment of corn. In percentage of total production, however, the oat shipments represent 26 as against 15 for corn.

Table 1 and fig. 1 give the annual production and shipments for a period of 8 years. Oat production, although not as varia-

ble as that of corn, has shown a rather wide range during the years studied. The percentage shipped each year, however, shows a still greater variation.

From the chart (fig. 1) it is evident that the trend for the 8-year period is downward both for production and shipments. Shipments, however, fall much more than production.

The annual shipments of oats reveal the influence of feed supplies upon the volume of oats entering commercial channels. In years of low corn production, 1924 and 1927, the percentages of oats shipped were the largest for the 8-year period. In 1927

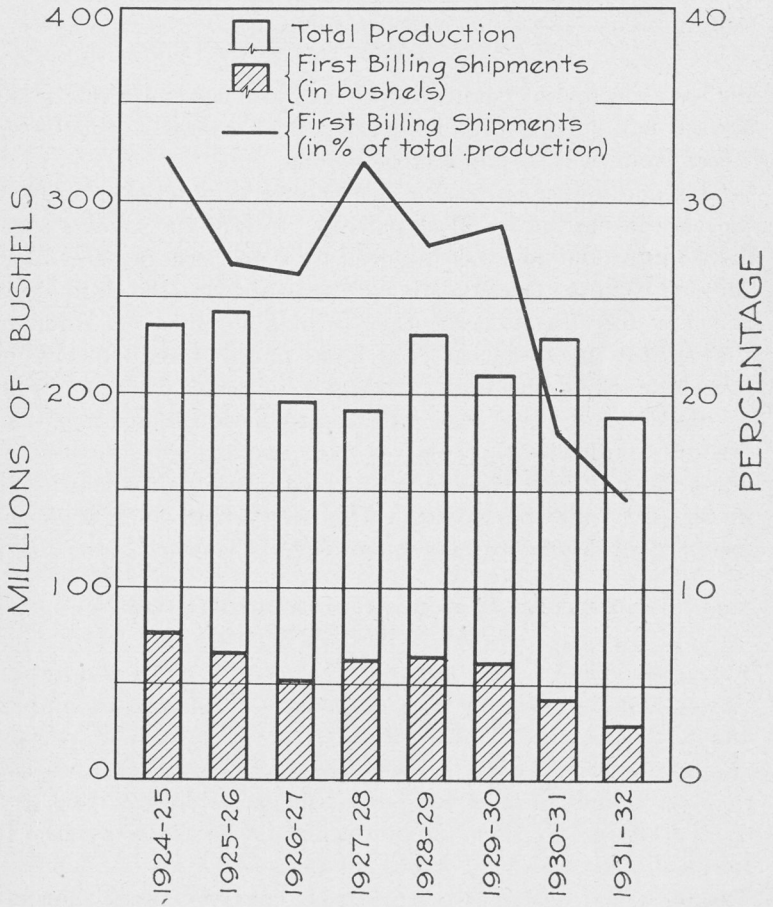


Fig. 1. Total production first billing shipments and percentage shipments are of total production.

TABLE 1. PRODUCTION AND FIRST BILLING SHIPMENTS OF IOWA'S COMMERCIAL OATS

Crop Year[1]	Total production[2] (thousands of bushels)	Percentage of normal[3] (1922-31)	First billing shipments	
			Thousands of bushels[4]	Percentage
1924-25	235,363	109.4	76,023	32.3
1925-26	243,647	113.3	65,234	26.8
1926-27	196,187	91.2	51,306	26.2
1927-28	191,373	89.0	61,318	32.0
1928-29	230,806	107.3	63,668	27.6
1929-30	209,798	97.5	60,155	28.7
1930-31	229,046	106.5	41,287	18.0
1931-32	188,552	87.6	27,577	14.6
Average	217,046	100.2	55,821	25.8

[1]Crop year meaning from Aug. 1 of one year to July 31 the following year.
[2]State Assessor's figures.
[3]Normal means the average of the 10 year period, (1922-31, incl.).
[4]The carload figures were converted into bushels by multiplying the number of cars by 2,200.

the oat crop for the country as a whole was also very small, but Iowa's oat surplus-producing area had a fairly good crop which enabled it to ship a large volume.

This does not mean that a decrease in production brings an increase in percentage of shipments. In 2 of the 4 years a decrease in production was followed by a decrease in percentage shipped. On the other hand, each year of increased production shows a decrease in percentage of oats shipped. A study of the utilization of the oat crop helps one to visualize some of these variations that occur from year to year. The carry-over at the close of each year reflects production, marketing and feeding conditions for the given year and also exerts considerable influence upon the amount of feed available for marketing during the following season. This carry-over along with the production, shipments, and amount fed, is shown in table 2.

TABLE 2. PRODUCTION, UTILIZATION AND CARRY-OVER OF IOWA'S OAT CROP
(Thousand bushels)

Crop year	Carry-over Aug. 1	Total crop production	Total shipments	Carry-over July 31	Amount fed of total produced	Amt. rec'd for feeding*	Total fed
1924-25	12,110	235,363	76,023	14,357	157,093	1,553	158,646
1925-26	14,357	243,647	65,234	19,492	173,278	889	174,167
1926-27	19,492	196,187	51,306	9,809	154,564	2,174	156,738
1927-28	9,809	191,373	61,318	6,124	133,740	3,507	137,247
1928-29	6,124	230,806	63,668	15,002	158,260	1,034	159,294
1929-30	15,002	209,798	60,155	13.637	151,008	1,300	152,308
1930-31	13,637	229,046	41,287	14,888	186,508	1,417	187,925
1931-32	14,888	188,552	27,577	9,428	166,435	1,054	167,489
Average	13,177	215,597	55,821	12,842	160,111	1,616	161,727

*This includes all oats received, some are from Iowa and some are from outside the state.

The carry-over shown in the fifth column of the table reflects very definitely the size of the crop harvested the previous fall. In 1926, 1927 and 1931, the 3 years of short crops, the carry-over is much smaller than in the other 5 years of normal or above normal crops.

Not all of the surplus production in good years is disposed of by means of shipments and carry-over. The column showing total bushels fed of total production brings to light concrete evidence that in years of good crops there is a tendency to feed more oats because of its abundance, while in short crop years the feeders are much more careful in their feeding operations.

But this does not tell the whole story of Iowa's feeding needs. The next to the last column of this table shows the amount of oats that must be shipped into deficit areas each year. Some years this feed is supplied almost entirely by Iowa's surplus areas, while in other years when the quality of Iowa's oat crop is poor, much of the receipts come from areas outside the state.

The annual shipments of oats reveal the influence of feed supplies upon the volume of oats entering commercial channels. In years of low corn production, 1924 and 1927, the percentage of oats shipped was the largest for the 8-year period. In 1927 the oat crop for the country as a whole was also very small but Iowa's oat surplus-producing area had a fairly good crop which enabled it to ship a large volume.

SURPLUS AND DEFICIT-PRODUCING AREAS

In order to appreciate fully the commercial movement of Iowa's oats the point of origin as well as the place of consumption must be known. Seventy-four percent of the commercial oats originate in one-fourth of the counties of the state. These 25 counties represent 29 percent of the crop land of the state and produce 39 percent of the total oat crop. Although we find this concentration of production in a few counties other areas of the state produce barely enough for local needs and still others produce less than their annual requirements.

The state has been divided into eight areas which follow very closely the type of farming areas presented in Bulletin 256.[4]

The subdivision of areas was based on the percentage of the oat crop shipped and the seasonality of shipment.

[4] Holmes, C. L. Types of farming in Iowa. Iowa Agr. Exp. Sta., Bul. 256, 1929.

The central and north central parts of Iowa furnish the bulk of Iowa's commercial oats. Figure 2 shows the annual shipments from each of the areas, and table 3 gives the average shipments for the 8-year period. The three areas—3, 4 and 5—furnish 85 percent of the total shipments which is a striking concentration of the commercial oats, since these three areas contain only 40 percent of the crop land in the state.

A further study of table 3 shows that the percentage of the total state production (column 4) is large when compared with the percentage of crop land (column 3) in areas 3 and 4. With hog and cattle feeding the principal livestock enterprise in these two areas, there is a considerable volume of oats available for cash sale. Although area 5 shows a percentage of total state production (column 4) greater than the percentage of crop land (column 3), this area lies so close to area 7 that much of the surplus oats is trucked to the dairy feeders and does not show in the rail shipments. While area 7 is also high in production of oats the dairy industry carried on there demands large quantities of oats leaving very little for commercial shipment.

Areas 1, 2, 6 and 8 show a lower percentage of total state production (column 4) when compared with total crop land (column 3), so that they ship very little oats. Areas 6 and 8, as in-

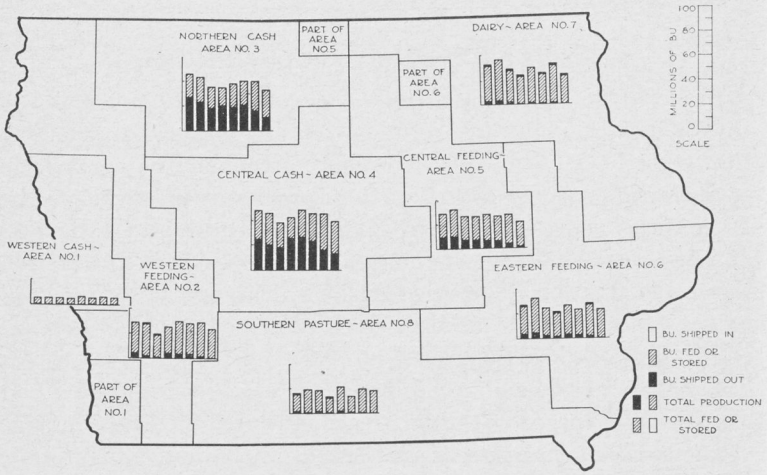


Fig. 2. Production, shipments and receipts of oats by areas and years. Note: The bars in each area represent the crop years 1924-25 to 1931-32, reading from left to right.

TABLE 3. PROPORTION OF TOTAL FARM LAND, CROP LAND, PRODUCTION AND SHIPMENTS IN EIGHT DISTRICTS.

Area	1930 Census		Eight Year Average* 1924 25 to 1931-32		
	Percent of all farmland in the state	Percent of all crop land in the state	Percent of total state production	Percent of total state shipments	Percent of area production that is shipped
Western Cash Area No. 1. 5 counties	5	6	2.6	1.1	11.3
Western Feeding Area No. 2. 12 counties	14	15	12.5	5.8	12.6
Northern Cash Area No. 3. 11 counties	11	13	18.2	35.0	48.6
Central Cash Area No. 4. 14 counties	15	16	20.9	39.2	47.1
Central Feeding Area No. 5. 10 counties	11	11	12.5	10.9	23.0
Eastern Feeding Area No. 6. 15 counties	14	13	11.9	4.2	9.5
Dairy Area No. 7 13 counties	13	12	13.1	2.4	4.6
Southern Pasture Area No. 8. 19 counties	17	14	8.1	1.5	4.9

*See Table 4 in the Appendix for yearly percentages.

dicated in fig. 2, are forced to ship in oats for feed in some years. Area 7, however, is the most consistent in showing receipts of oats year after year.

While there is considerable variation among the areas in volume of oats shipped, there is still more variation between the individual counties within each area. Figure 3 shows some of

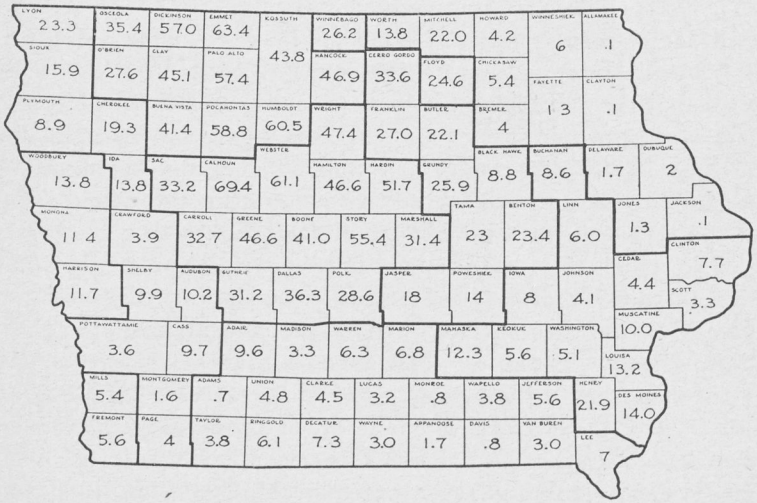


Fig. 3. Average percentage of oats shipped on first billing. (1924-25 to 1931-32.)

the dairy counties shipping rather large quantities of oats while others show practically no shipments.

PART II. MARKET MOVEMENT OF IOWA'S COMMERCIAL OATS

An average of the oat shipments for the years 1924 to 1930 shows that 41 percent of the commercial movement goes to markets outside the state on first billing. This is much less than the corn shipments which show that 52 percent of the commercial movement leaves the state on first billing.

The remaining 59 percent of the commercial oats is billed to Iowa's primary markets or to local feeding areas within the state. Of the oats billed to these primary markets, one-fifth to one-fourth is used by the manufacturing plants located at these markets.[5] The remainder is stored, processed and reshipped to other terminal markets or direct to local feeding areas.

RELATIVE IMPORTANCE OF THE VARIOUS MARKETS

Cedar Rapids is by far the leading market to which Iowa's commercial oats move on first billing. From 40 to 45 percent of the total loadings go direct to this market. Chicago is second with 8 to 15 percent of the total loadings.

The shipments to all markets are shown in fig. 4. The circles indicate terminal markets to which Iowa's oats are shipped. The black areas represent shipments into consuming channels, a good share of which goes direct to feeder markets, while the rest go to processing plants. The area of the circles indicates the percentage of the total oat shipments going to each market.[6]

The volume and quality of the oat crop in the neighboring states is one of the most important factors affecting the direction in which the Iowa crop tends to move. Figure 4, in addition to showing destination of oats, also shows the production of oats in the three principal oat producing areas of the Corn Belt. The production of these areas is given in percentage of normal, normal being taken as the 10-year average, 1922 to 1931. The eastern area is made up of those states bordering the Great Lakes and Iowa. The southern area is comprised of Missouri and those states south of the Ohio River and

[5] Bentley, Ronald C. Movement of Iowa's commercial corn and oats. Iowa Agr. Exp. Sta., Bul. 252. 1928.

[6] Table 5 in the Appendix shows percentages by years.

east of the Oklahoma-Texas border. The western area includes all states west of the two areas already described.

The production of corn has considerable influence upon the direction of oat movements. Since oats can be substituted for corn an extremely short crop of corn in any section of the Corn Belt may draw large quantities of oats from a surplus-producing area. In studying the oat movements year by year it is well to have clearly in mind the corn production and shipment picture.[7]

Figure 4 shows very clearly how an increase or decrease in feed supplies changes the directional flow of oats from Iowa's surplus-producing areas. Each year presents a new combination of demands for feedstuffs which calls for a movement different from the year preceding.

The 1926-27 season brought a strong demand from the states to the west where the oats and corn crops were very light. South Dakota received the largest volume of direct shipments, but the movement to Council Bluffs indicated that other western states also received large quantities. Large shipments to Minneapolis indicated a shortage of oats to the northwest.

With such a strong demand for oats to the west and north very little of Iowa's oats moved to the eastern and southern terminals. Chicago especially showed very light receipts during this year.

In 1927-28 the production of feed grains showed almost the reversal of the year before and with it the shipments moved through different channels. The Mississippi Valley harvested an exceptionally small crop of both corn and oats and the southeastern states had the poorest oat crop of the 5-year period. All of the Mississippi River markets in Iowa showed increased movement. Receipts at Chicago doubled in volume over the previous year.

The direct movement into Illinois and Wisconsin showed considerable increase over the previous year; in fact, it more than doubled for each state. The movement into Iowa's deficit areas, although not as large as 1926-27, showed the effects of a short crop in the Mississippi Valley.

In 1928-29 the oat crop was above normal and no real deficit existed. Corn production, however, in the South was only 95

[7] Bentley, Ronald C. The Destination of Iowa's commercial corn. Iowa Agr. Exp. Sta., Bul. 318. 1934.

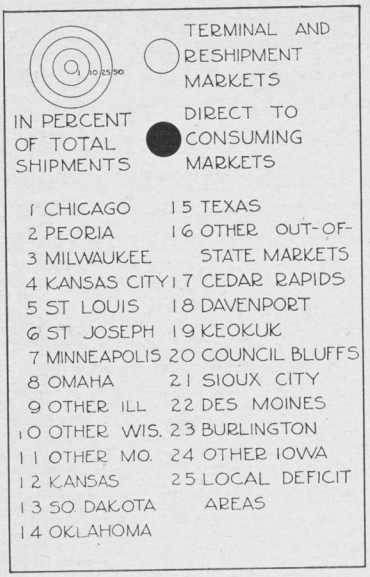
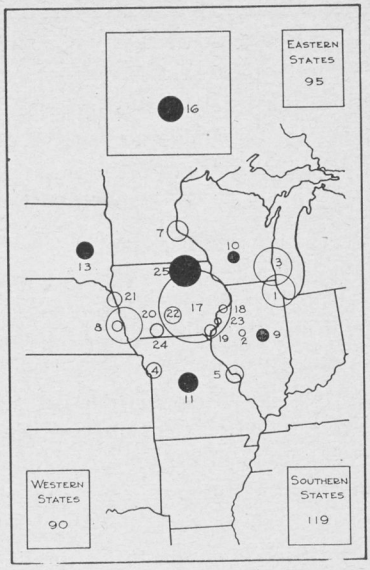
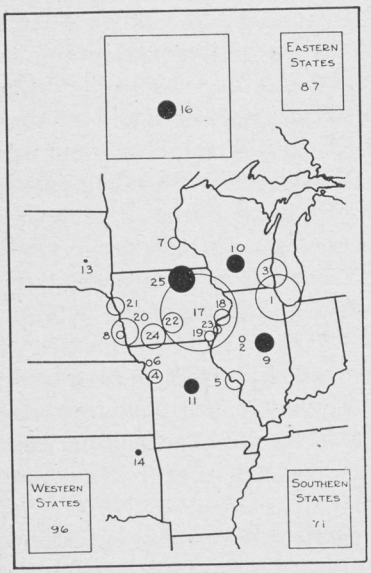


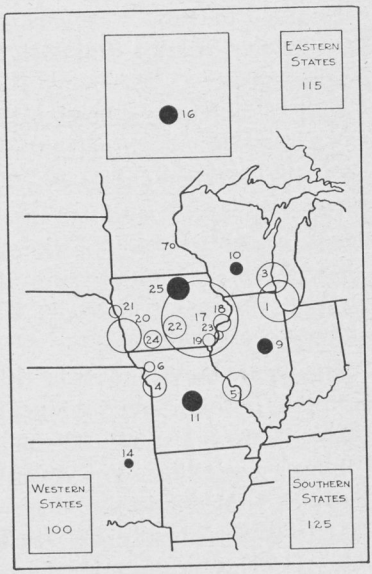
Fig. 4. Legend.



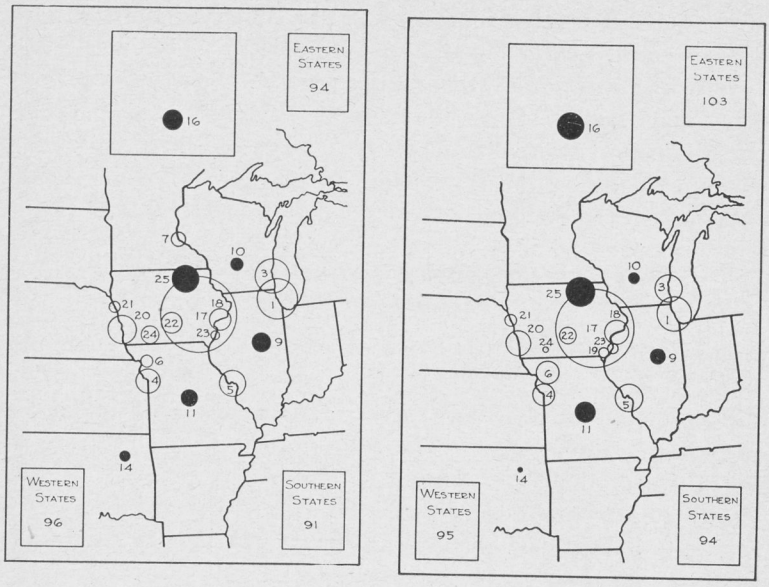
Crop year 1926-27.



Crop year 1927-28.



Crop year 1928-29.



Crop year 1929-30. Crop year 1930-31.

Fig. 4. Market destination of Iowa's commercial oats on first billing.

percent of normal. Shipments for that year showed the effects of this short corn crop upon the directional movement of Iowa's commercial oats. Kansas City and St. Louis more than doubled their volume when compared with the two previous years. Council Bluffs and Des Moines, which afford an opportunity for reshipment to these southern markets, showed some increase over the 1927-28 movement.

The 1929-30 production of feed crops was different from any of the former years. For the country as a whole both the corn and oat crops were below normal. There was very little change in the markets used or the volume shipped to each market from the 1928-29 movement. Council Bluffs received a little less and Kansas City a little more than the preceding year. Iowa and Illinois local feeder markets showed some increase, but the remainder of the shipments was about the same as in 1928-29.

In 1930-31 the southern states had their third consecutive short crop, the smallest corn crop of any of the years studied. This shortage of corn coupled with a light oat crop created a

large demand for Iowa oats. The movement to the southern outlet was the largest for the 5-year period.[8]

With the strong demand coming from the South, Iowa's primary markets showed an increase in receipts. Cedar Rapids and Davenport showed exceptionally large receipts as they are enroute to the southern outlets. Shipments to Iowa's deficit areas reflect the shortage of feed grain within the state.

MARKET MOVEMENT OF OATS FROM IOWA'S PRIMARY MARKETS

Iowa's primary markets receive each year 15,000 to 27,000 cars of oats, not all of which, however, originate within the state. Of these, 11,000 to 17,000 cars originate in Iowa's surplus producing areas. The oats of Iowa origin received at the primary markets represent 43 to 60 percent of the state's total commercial shipments. These percentage figures show the importance of Iowa's primary markets in the movement and disposal of the oat crop.

Feed grain production in the neighboring states is just as important a factor in determining the direction of oat movements from the primary markets as it is in determining the direction of movement from the point of original billing. Figure 5 shows that in 1927-28 with the extremely short crop of oats to the south and the short corn crop in the Mississippi Valley the oats moved in a southeasterly direction. Chicago and St. Louis, which are the gateways to the eastern and southern deficit areas, received large quantities of Iowa's oats.

In 1928-29 while both the oat and corn crops were above normal for the country as a whole, in states like Oklahoma, Texas and Tennessee, oat production was very light. Each of those states shows rather large receipts of Iowa's oats. With a good crop of both feed grains throughout the Corn Belt, Chicago, Peoria and St. Louis, which are overflow markets, received large quantities of oats that went into storage until later in the season.

The shipments for the next 2 years, 1929-30 and 1930-31, show the effects of short feed crops to the south and east. In 1930-31 the corn crop in southern states was exceptionally small. With

[8] See table 6 in Appendix for "Directional Movement of Iowa's Oats" by years.

such a strong demand from the south and southeast, Chicago and Peoria received very little of Iowa's oats.

Shipments of oats billed out of Iowa's primary markets not only reach a much wider range of markets geographically, but also go to quite a different type of market from the first billing shipments. Twenty-eight to 52 percent of the primary market shipments, compared with 10 to 18 percent of the first billing shipments, go into consuming channels.[9]

Figure 5 presents a much larger number of black dots than fig. 4. In fig. 4 these black dots, with one exception, appear only in the states adjoining Iowa, while in fig. 5, which represents the reshipments from Iowa's primary markets, the black dots appear in areas far removed from the borders of the neighboring states.

The South is the largest outlet for oats reshipped through Iowa's primary markets. An average of the 4 years 1927-1930 shows that 51 percent of the oat shipments go to the south and southwest.[10]

For the same period only 17 percent of the corn moved to this outlet. The eastern states bordering on the Great Lakes furnish the largest outlet for corn reshipped through Iowa's primary markets.

A study of figs. 4 and 5 leads to the following question: why is it that Iowa's primary markets are able to ship a much larger part of their oats direct to feeding areas than the local stations scattered throughout the state? Chief among these reasons is the seasonality of oat shipments. With 45 to 50 percent of the total shipments leaving the local shipping point the first 3 months of the season it is only natural that the terminal markets must absorb a large share of this movement. These terminals process, store and reship as the demand arises. More will be said concerning this point in a later section covering the seasonal movements. Then, too, even though most feeders admit that country run oats make the best feed they prefer to deal through an agent close to the source of supply who will at the same time take responsibility for the shipment. The further removed from the source of supply the more important become these factors.

[9] See table 7 in Appendix for shipments to individual markets.
[10] See table 8 in the Appendix for directional shipments from Iowa's primary markets.

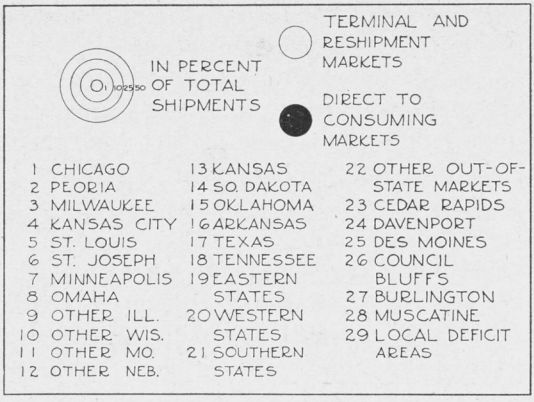
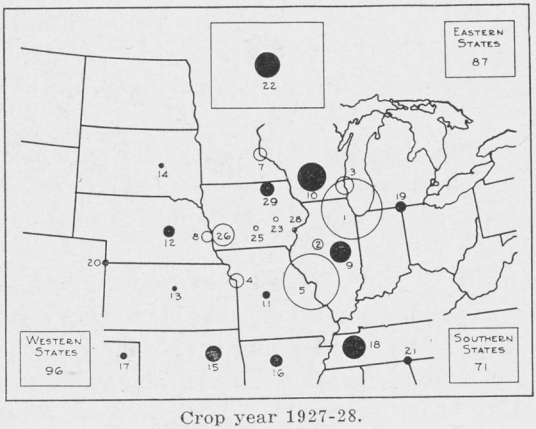
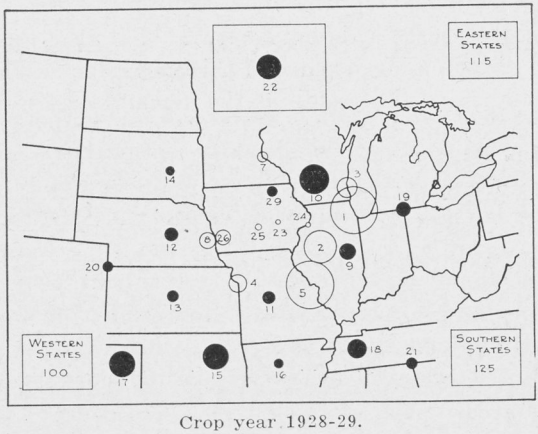


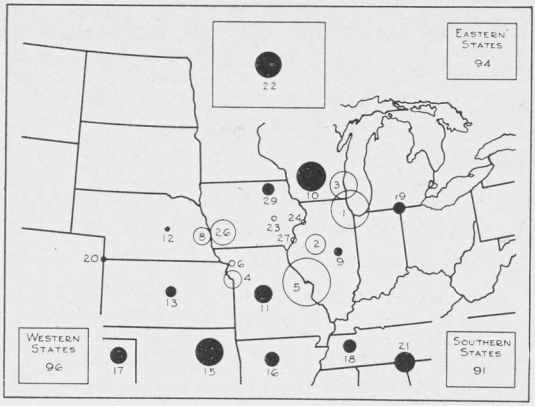
Fig. 5. Legend.



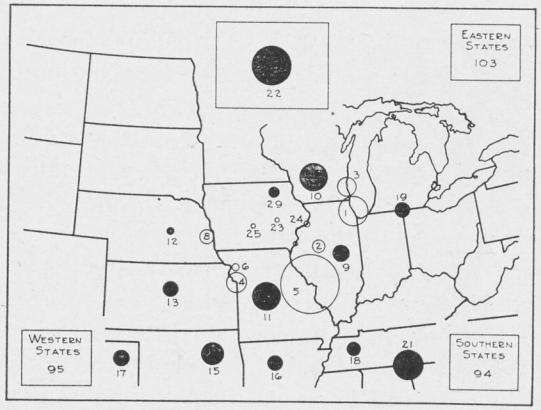
Crop year 1927-28.



Crop year 1928-29.



Crop year 1929-30.



Crop year 1930-31.

Fig. 5. Market destination of oats shipped from Iowa's primary markets.

CHANGES IN MARKET MOVEMENT OF FIRST BILLING SHIPMENTS BY AREAS

A number of factors affect the flow of oats from a given area to a group of markets. Geographic location of the market with respect to the area, crop conditions of feed grains in the area served by the market, freight rates, storage facilities and price differentials are among the most important. Some markets receive a constant amount from the same area year after year, others varying amounts, and still others show steady growth or decline throughout the period.

Figure 6 shows a varied assortment of markets used by the different areas. The markets have been grouped to show the

directional flow of oats from the four largest shipping areas. The movement to out-of-state markets is shown separately from the movement to Iowa's primary and local markets. Only four areas are shown, but these four areas make up 91 percent of the total shipments.

The western feeding area Number 2 distributes its shipments more evenly among the markets than any of the other areas. It uses Iowa's western outlet more than any of the other areas.

For the other three areas Iowa's manufacturing centers and the out-of-state eastern markets are the two outlets which show the most constant receipts. Iowa's manufacturing centers, of which Cedar Rapids is most important, receive by far the largest percentage of each area's shipments. The variations from year to year in volume of shipments to these two outlets from the three areas is relatively small. Corn shipments to these outlets from the same areas show much more variation during the same period of years.

The movement of oats to the out-of-state southern markets shows a marked increase for the period, especially from the three areas 3, 4 and 5. The movement through Iowa's southern outlet does not show the same trend.

Shipments to the other outlets reflect temporary seasonal demands. In 1926-27, with the very short feed crop in the western states, the increased movement through the out-of-state western markets was noticeable. The short feed crop in eastern Iowa during the 1927-28 season shows increased movement from all areas to Iowa's local feeding area.[11]

PART III. SEASONAL MOVEMENT OF IOWA'S COMMERCIAL OATS

Although oats are primarily a feed grain crop their seasonal flow to market, which resembles the movement of wheat rather than of corn, has been a factor in oats being designated a cash grain crop in some sections of Iowa.

SEASONAL MOVEMENT FOR THE STATE AS A WHOLE

Nearly one-fourth of Iowa's commercial oats leaves the local shipping point during August. If the oats that go into storage

[11] See table 9 in the Appendix for market movement by areas.

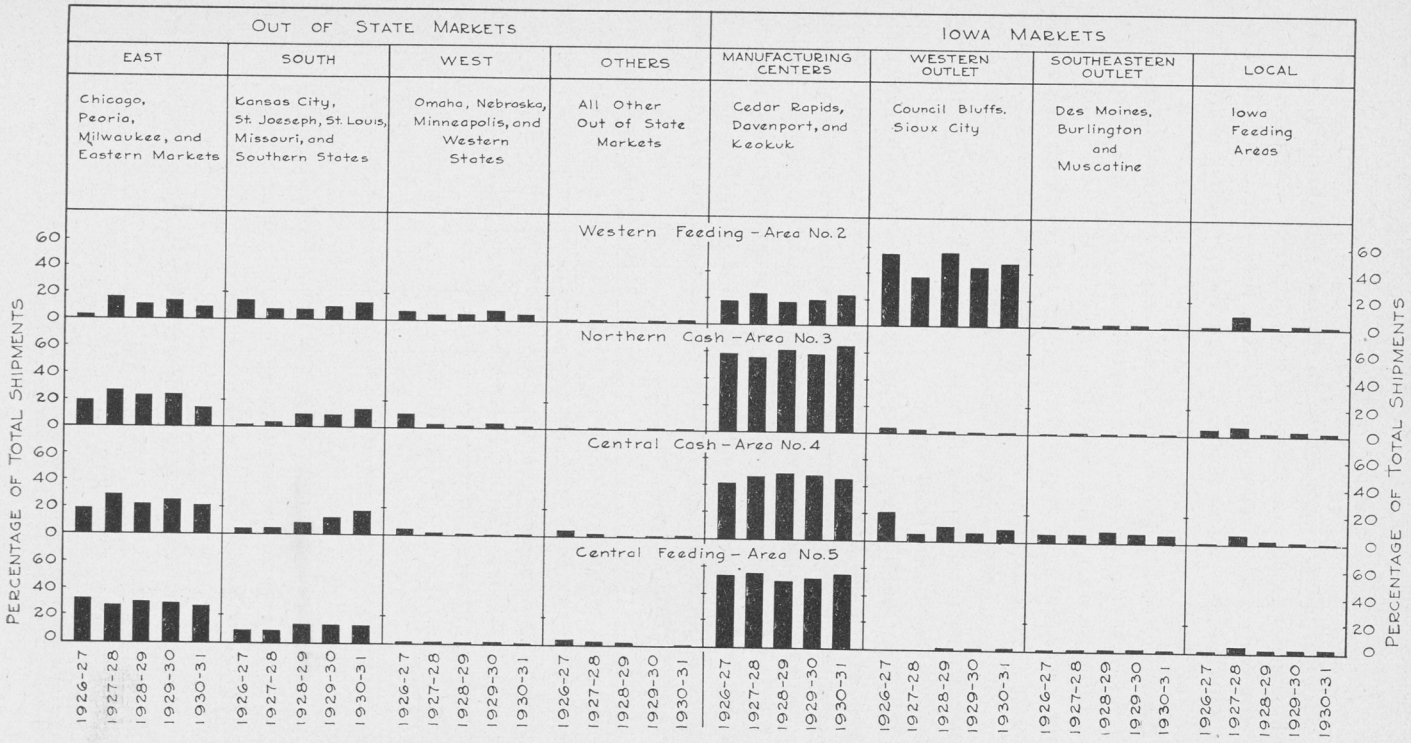


Fig. 6. Percentage of total shipments of oats moving annually to various markets by areas. Note: First billing shipments.

at the local elevator are added to the amount shipped the total farm sales are well over 25 percent of the total commercial oats. By the end of the first 3 months 45 percent have left the local shipping point. These shipment figures are taken from an average of the 8 years 1924-1925 to 1931-32 as shown in fig. 7.

Figure 7 further shows the effect this heavy marketing during the first 3 months of the season has upon the price. The price during July also shows the effect of the new crop, for in some years the new crop is moving the last week or two of this month. The sharp down turn of the two price curves the latter part of the season is accentuated by the general decline in the general price level during the past 3 years. This decline in prices is shown more clearly in fig. 8.

The early marketing of oats by Iowa farmers is not as serious a problem as the early marketing of corn. The seasonal rise in price shown in fig. 7 is only 4 cents in the case of oats, while corn for the same period shows a seasonal rise of 10 cents per bushel. If the first 5 years shown in fig. 8 were averaged the seasonal price rise would be 6 cents instead of 4. The steady decline in the general price level the last 3 years has lowered this average seasonal advance by one-third.

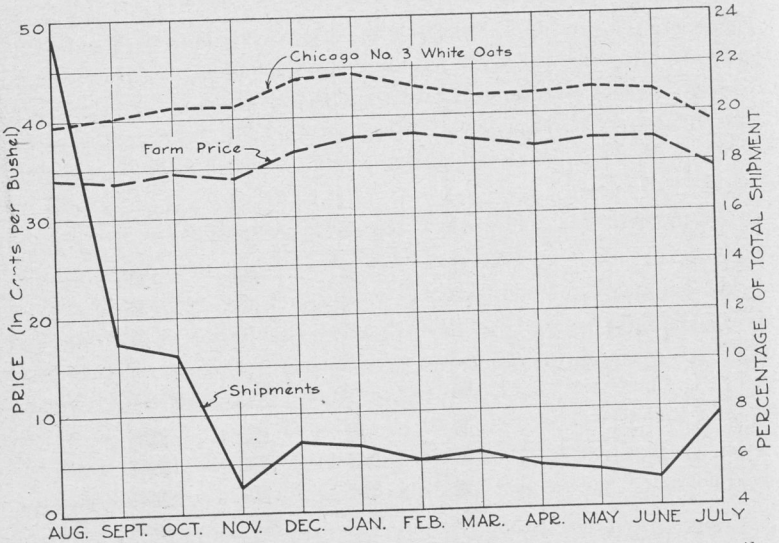


Fig. 7. Average percentage shipments and prices of oats by months. Note: Farm price means the average price received by Iowa farmers for oats sold. U. S. Dept. of Agr. monthly price.

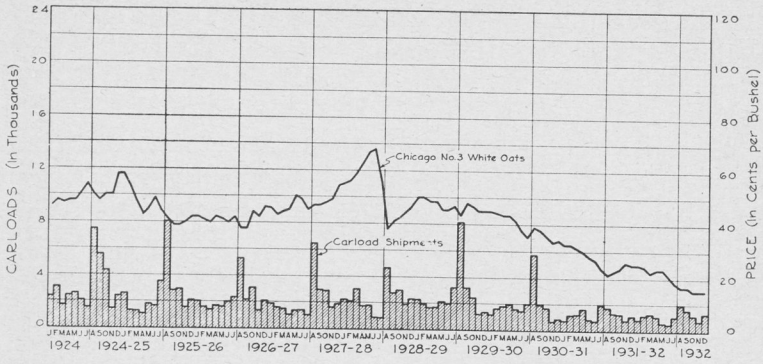


Fig. 8. Shipments and prices of oats by year and month (1924-1932).

The price of oats seems to be much more stable throughout the season than that of corn. The 1927-28 season, when feed supplies were very low in the heart of the Corn Belt, was really the only season in which a marked variation from a fairly narrow price movement took place. Figure 8 shows the monthly movement of oat prices over a period of 9 years. With only a 4 to 6 cent seasonal price rise there is very little profit in delayed marketing for the farmer after costs of storage are deducted, as shown by an earlier publication.[12]

A farmer may obtain more nearly the full benefit of oat storage by being a member of, or patronizing, local grain elevators that use sound methods of merchandizing and marketing grain. The discussion of these methods does not come within the scope of this bulletin, but they have been very adequately covered by Frank Robotka in a paper read before the American Institute of Cooperation at Manhattan, Kan., June 8, 1931.[13]

Professor Robotka stresses two ways of obtaining an adequate return for storing oats from fall until spring: first, by using the futures market to obtain the discount (or "the carrying charge"), and second, by taking advantage of the shift from an "export" to "import" basis. A further study of the two price curves in fig. 7 lends strength to this second point. During the first half of the marketing season the spread between the Chicago and the farm price is 6.5 cents per bushel.

[12] Shepherd, G. S. Does Iowa dump its grain? Iowa Agr. Exp. Sta., Cir. 118, 1929.

[13] Robotka, Frank. Functions and future development of local elevators in storing feed grain. Mimeograph copies, Agr. Econ. Section, Iowa State College.

For the second half the spread narrows to 4.7 cents. In some sections of the state this spread is much narrower than in others; in fact, bids for oats have been known to go above Chicago for short periods.

This narrowing of the spread between the Chicago and farm price during the second half of the season indicates that local areas have shifted from exporting to importing oats. This shift means that local bids must offer enough to pay part of the incoming freight in order to draw any local oats to market, and if local oats are not available they must offer all of the local incoming freight. The area of the state affected by this shift, from export to import, changes from season to season and from year to year.

SEASONAL MARKETING BY AREAS

Now let us investigate the seasonal marketings of the different areas of the state to see how each conforms to the average. The monthly deviations from the state average are as great for oats as they are for corn and in some months greater. But in the case of oats we do not find the same areas falling into the two groupings of "early vs. late" marketing on a type of farming basis as we did in the case of corn.

There are, however, some areas that ship their oats much later than others. This is shown by fig. 9. Area 2 is one which shows rather small shipments the first month as compared with the state average. The small percentage shipped during August may be the result of a high percentage of non-cooperative elevators in this area. Data show that 66 percent of the elevator capacity in this area is non-cooperative,[14] and an earlier study shows that the non-cooperative elevators put into storage large quantities of oats during August.[15] With the relatively small volume of total shipments from this area it is conceivable that a large part of the oats purchased early are put into storage.

Note that the shipments from area 4, after the large movement during August, drop below the state average for the remainder of the first half of the season. In the second half of the season this area shows larger shipments than the state aver-

[14] Bentley, Ronald C. Destination of Iowa's commercial corn. Iowa Agr. Exp. Sta., Bul. 318, table IV, p. 29, 1934.

[15] Robotka, Frank. Functions and future development of local elevators in storing feed grain. Mimeographed. Agr. Econ. Section, Iowa State College, Fig. 1, p. 20.

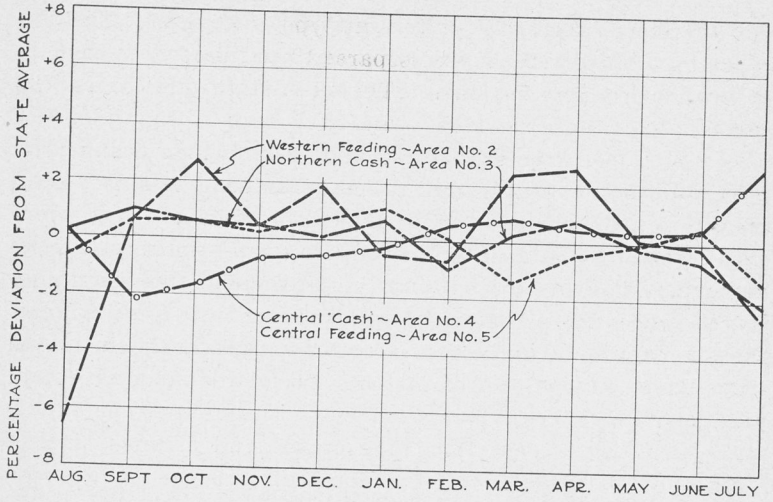


Fig. 9. Percentage deviation from state average of shipments from various areas by months (1924-25 to 1931-32).

age. With the exception of the last month of the crop season the monthly deviations from average for oat shipments are almost identical with the monthly deviations for corn shipments for this area.[16] In this area where heavy feeding is the practice and fairly adequate facilities are available for farm storage, more of the feed grain is held until the farmer knows what the coming season may yield. This area also has a large concentration of independent and line elevators where large quantities of oats are stored for carrying charge.

In area 3 where share tenancy is high, causing much of the cash grain crop to be sold off the farm, oats move to market early in the season. There is, however, a high percentage of independent and line elevators in this area which help to check this early flow to market.

SEASONAL MOVEMENT FROM DIFFERENT AREAS TO VARIOUS TYPES OF MARKETS

Next let us follow these seasonal shipments to the various types of markets to see if there is any changing from one market to another as the volume and demand change. For this purpose five groupings have been made, but this does not mean

[16] Bentley, Ronald C. Destination of Iowa's commercial corn. Iowa Agr. Exp. Sta., Bul. 318, 1934.

that there are exactly five different types of markets. The out-of-state shipments are shown separate from the local movement to Iowa's primary markets. The out-of-state terminal group is made up of those markets which have large storage facilities where oats are processed, stored and reshipped to commercial feeder outlets or transferred to manufacturing plants within these terminals which convert the oats into food and feed products. The out-of-state feeder group consists primarily of markets where the oats are fed locally, but some of this grain goes first to processing plants which supply these local feeding areas. Iowa's manufacturing centers comprise those markets in the state where a large part of the oats received is made into food products. Iowa's reshipment markets are similar to the out-of-state terminals except that they operate on a much smaller scale. Iowa's feeding outlet is made up of local feeders who receive grain direct from low surplus producing areas.[17]

Monthly shipments to these types of markets are shown in fig. 10. Only four areas are presented as the shipments from the other areas are too small to show graphically, being less than 10 percent of the state's total.

The large sale of oats direct from the threshing machine during August is again very noticeable. This movement continues fairly strong for the next 2 months and then drops to a low point during corn picking. The movement is fairly uniform through the winter and spring with an increase at the close of the season, the increased movement coming mostly from area number 4.

Figure 10 shows that Iowa's manufacturing centers are the leading markets throughout the season for the three largest shipping areas. This outlet takes 42 percent of Iowa's commercial oats.[18] Area 2 ships the largest percentage of its oats to the outlet nearest at hand, but as the season advances the other outlets take a larger share of the monthly shipments from this area.

The out-of-state terminal comes second in importance as an outlet for Iowa's commercial oats. The movement to this outlet represents 32 percent of the state total. The other three outlets in order of their importance are (1) Iowa's reshipment cen-

[17] These groupings are shown in table 11 of the Appendix.
[18] See table 12 in the Appendix for percentages to the various outlets.

ters, (2) out-of-state feeder markets, and (3) local deficit areas in Iowa.

Areas 2 and 4 distribute their shipments most evenly among the various outlets. Areas 3 and 5 cater more to the two larger outlets; in fact, area 3 sends 60 percent of its oats to Iowa's manufacturing centers.[19] Relatively large shipments to the out-of-state terminals and Iowa's manufacturing centers might be expected during the months of large farm sales, for most of this early movement must go to the terminals for storage; but as the season advances and feeding areas become deficit instead of surplus-producing areas; then markets nearer these deficit areas begin bidding for feed.

Area 4 furnishes an example of the way in which the reshipment markets come in for a larger share of the total shipments during the late winter and early spring months than earlier in the season. The manufacturing centers of Iowa also increase their receipts during this period, for they serve both as storage and reshipment outlets to more distant deficit areas. The two feeder outlets show increased receipts during these same months. Then as the hay crops come on during the early summer months a larger share again goes to the larger terminal markets.

SEASONAL MOVEMENT TO DIFFERENT TYPES OF MARKETS FROM IOWA'S PRIMARY MARKETS

The largest volume of oat shipments from Iowa's primary markets comes in the second half of the marketing season. This is exactly opposite from the corn movement which shows the largest movement the first half of the marketing season. This difference is undoubtedly due to the storage equipment at Iowa's primary markets. To store corn during the first half of the season for any length of time usually requires drying. Very few of the storage plants in Iowa have drying facilities; therefore, most of this early movement of corn must go on to the larger terminals where it is dried for storing. Iowa's primary market storage space is used more for storing oats than corn.

Figure 11 shows that August, which is the month of largest farm sales of oats, is one of the months of lightest movement for

[19] See table 12 in the Appendix for percentage shipments to types of outlets by areas.

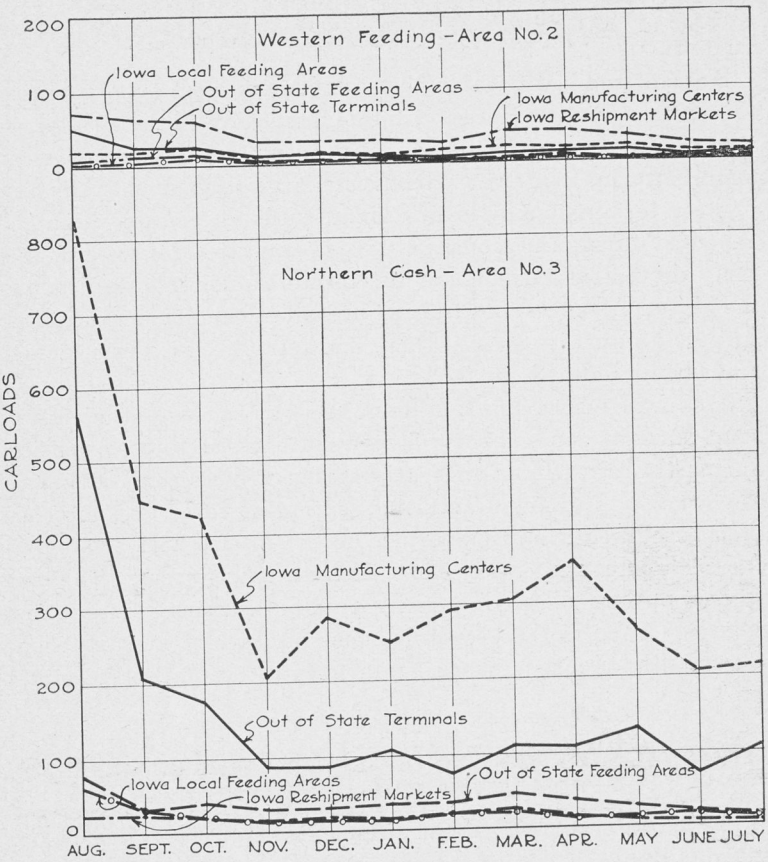


Fig. 10. Average monthly shipments by areas to five types of outlets (1926-27 to 1930-31).

the primary markets. There is some increase during the next 2 months which indicates that storage facilities are nearly filled. After November, the corn picking month, the oat movement increases and continues to increase until after May when most of the hedged oats are delivered.

It is interesting to compare the outlets used for oats and corn.[20] The reshipments of oats through Iowa's primary markets go principally to the out-of-state terminals while corn reshipments go largely to out-of-state feeder markets. This difference may be explained by showing the ultimate destinations of

[20] Bentley, Ronald C. Destination of Iowa's commercial corn. Iowa Agr. Exp. Sta., Bul. 318, p. 39, fig. 13, 1934.

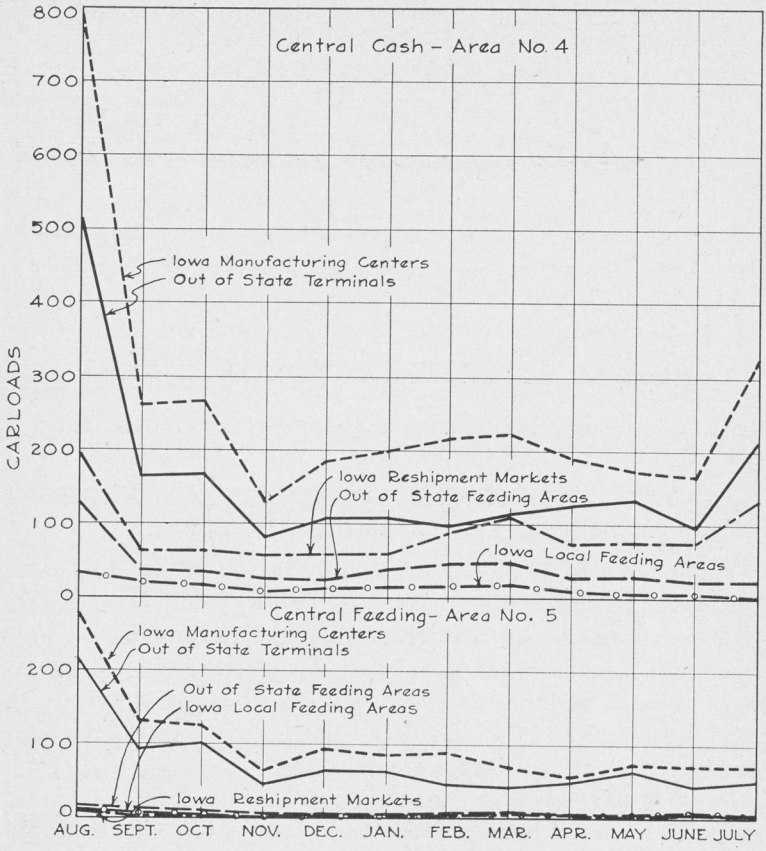


Fig. 10. (Continued.)

the two crops. Corn is fed almost exclusively in the Corn Belt proper, while rather large quantities of oats go south into the Cotton belt. It has been the practice in the past for these southern users to get their feed through the southern markets, such as St. Louis and Kansas City,[21] but our figures show that more and more of the southern shipments are going direct to feeder markets.

There is some movement of oats between these primary markets but not as much as in the case of corn. Most of the oat movement is between the reshipment points. The local movement of oats into feeder markets from Iowa's primary markets is very small.

[21] See table 13 in the Appendix for yearly shipments from Iowa primary markets.

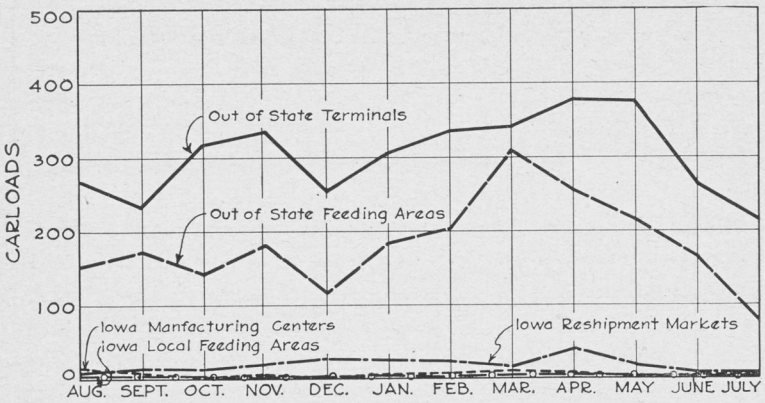


Fig. 11. Average monthly shipments from Iowa's primary markets to five types of outlets (1927-28 to 1930-31).

PART IV. DESTINATION OF OATS FROM REPRESENTATIVE COUNTIES IN IOWA

The movement of Iowa's commercial oats to individual markets has been shown, market outlets used by the different areas of the state have been pointed out and the reshipments of oats from Iowa's primary markets have been traced to their destination. Now it is desirable that a still smaller area or group of shipping points be studied to see what markets are used under changing supply and demand conditions.

For this purpose four counties in the heart of the heavy oat production and shipment areas have been selected. It would take too much space to picture the shipments for each of these counties for all the years studied as we did for the state. Instead, three years have been selected to show the changes in choice of markets with changing supply and demand conditions in the neighboring Corn Belt states.

O'Brien, Pocahontas, Kossuth and Story are the counties selected. The years 1926-27, 1927-28 and 1930-31 are used because of the peculiar crop condition for each of the years.

SHIPMENTS FOR THE 1926-27 CROP YEAR

The 1926-27 crop year was chosen because of the extremely small production of feed grains in northwestern Iowa and states to the north and west. The corn crop was especially light, and large quantities of oats moved into the western states for feeding purposes.

O'Brien County sent 26 percent of its commercial oats direct to the western states and another 19 percent to Iowa's western markets which serve this territory. Figure 12 shows that Pocahontas and Kossuth both shipped fairly large quantities into the western states. And Story County, which lies in the center of the state, forwarded 37 cars to the western markets.[22]

Although the movement of oats into northwest Iowa for feeding purposes is not the usual practice, the drouth caused several counties to ship in oats during the 1926-27 season. The movement of oats into the northeast counties is a normal seasonal practice because the dairy section uses more oats than it produces.

Each of the counties shipped a few carloads of oats to the southern terminals. Normally feed grains move to the east and south; and since the South is one of our largest consumers of oats this movement is very natural. But the interesting thing about this year's movement is the "back haul," or the movement of feed grains opposite to the natural directional flow.

SHIPMENTS FOR THE 1927-28 CROP YEAR

The 1927-28 year was chosen because of the extreme contrast in feed production among the different sections of the Corn Belt. While the Mississippi Valley and the eastern states harvested a very small crop of poor quality, the eastern half of Iowa and the western states harvested one of the best crops in many years. The oat crop was exceptionally poor in the southeastern states. With this distribution of feed grains the strong demand centered in Iowa's deficit area and the feeding states to the east.

Although the total production for Iowa was below that of the previous year the shipments for the state were 10 million bushels greater. Northwest Iowa, where most of the oats are grown for sale, had a good crop and this, coupled with a drastic rise in oat prices after the mid season, brought a large volume of oats to market. Figure 13 shows this increased movement from the four counties.

A marked increase in movement to the eastern terminals is noted from each of the four counties. This eastern movement is especially noticeable following a year like 1926-27 when the

[22] Table 14 in the Appendix shows percentages shipped by each county covering a 5-year period.

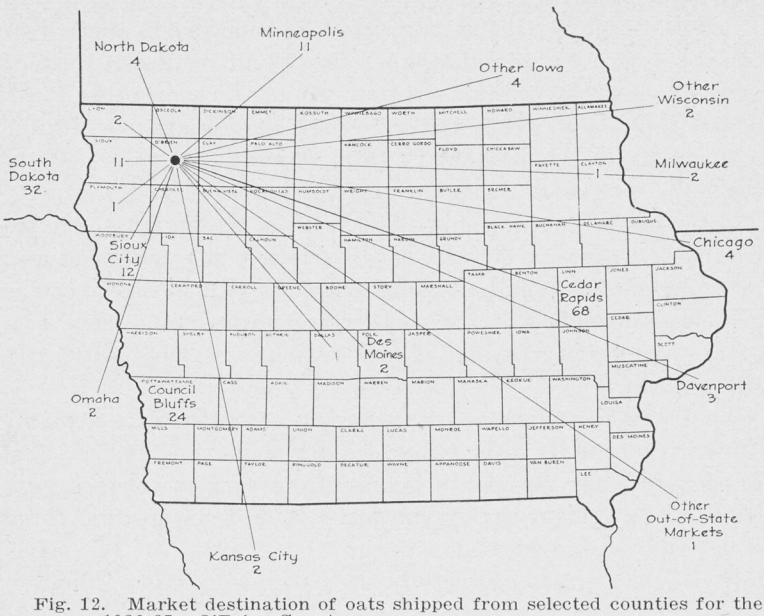


Fig. 12. Market destination of oats shipped from selected counties for the crop year 1926-27. O'Brien County.

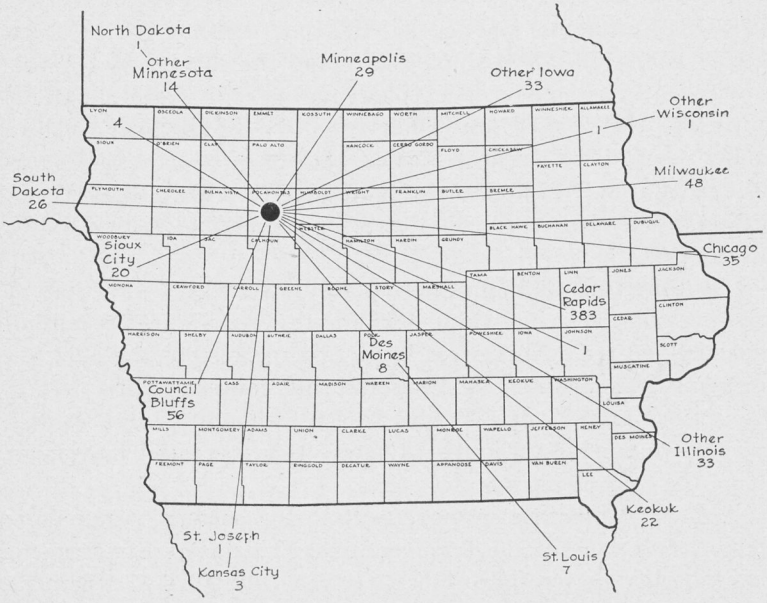


Fig. 12 (Cont.). Pocahontas County.

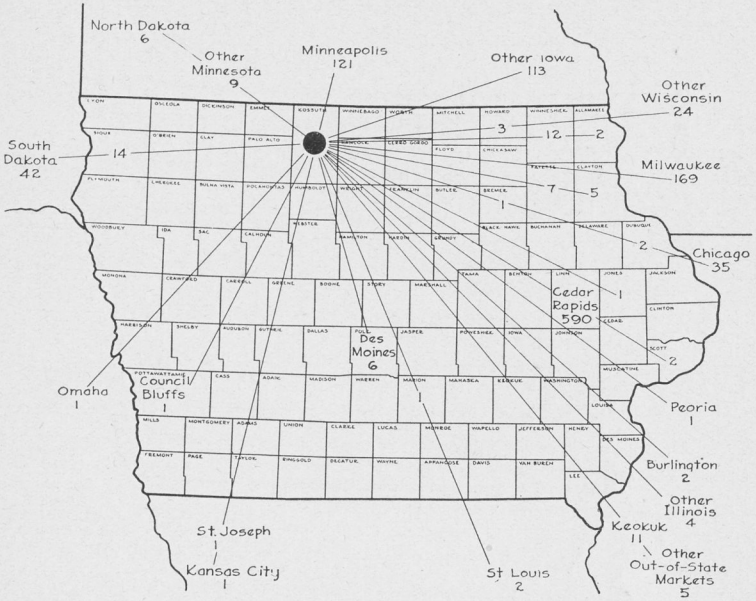


Fig. 12 (Cont.). Kossuth County.

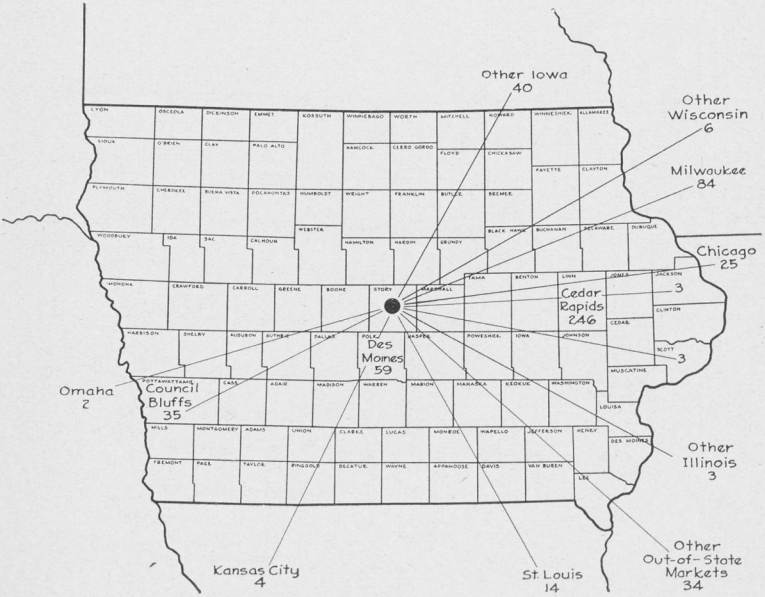


Fig. 12 (Cont.). Story County.

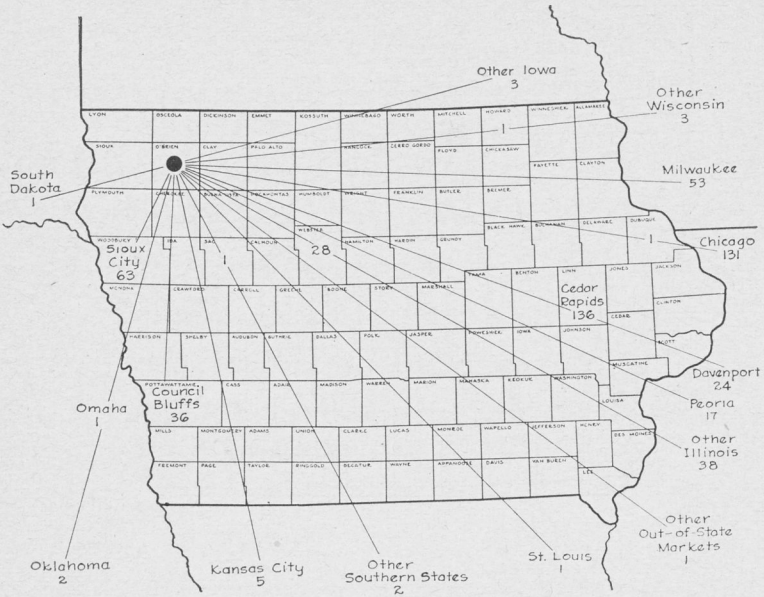


Fig. 13. Market destination of oats shipped from selected counties for the crop year 1927-28. O'Brien County.

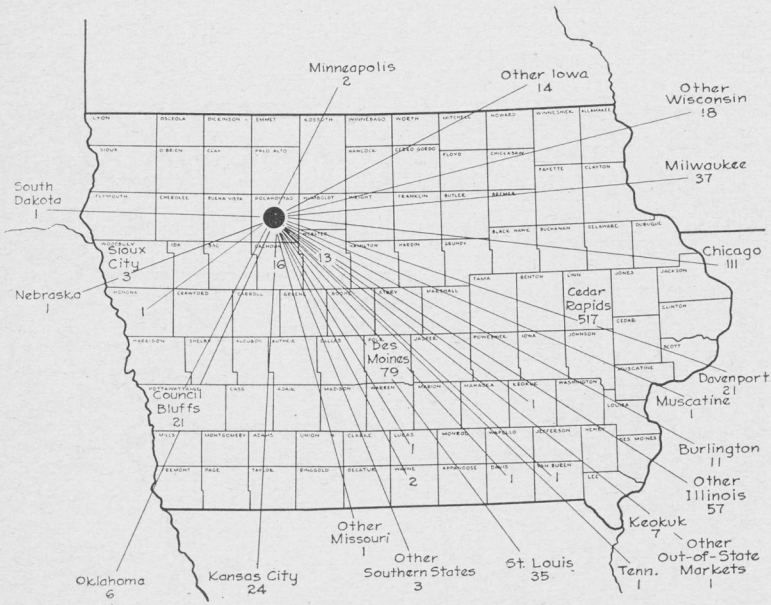


Fig. 13 (Cont.). Pocahontas County.

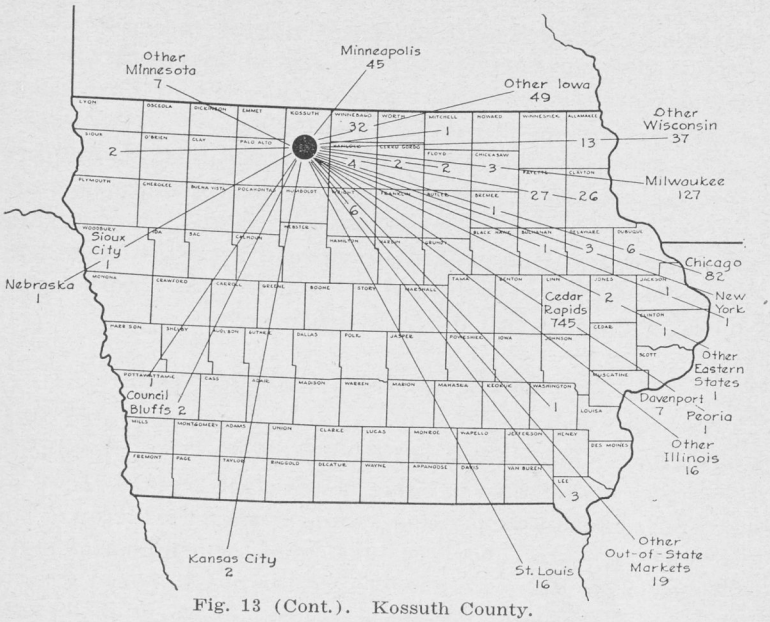


Fig. 13 (Cont.). Kossuth County.

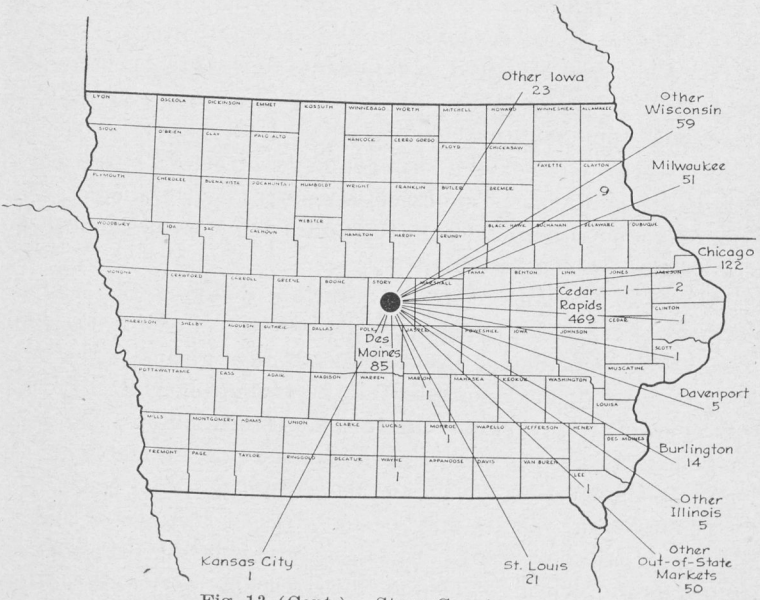


Fig. 13 (Cont.). Story County.

drouth in the West forced large shipments into the western states. The movement to the southern terminals showed some increase over the previous year but not as great as the eastern increase.

The movement into local feeding areas of Iowa showed some increase, especially from Kossuth County. Kossuth County is very favorably located geographically, both as to directional movement and with regard to railroad facilities for a direct haul on the same railroad to the deficit area. Story County placed shipments into all of the deficit areas.

SHIPMENTS FOR THE 1930-31 CROP YEAR

The 1930 crop proved to be one of the smallest United States feed crops in many years, but the distribution of the production was much evener than in either of the other 2 years. Iowa was in a rather favorable position with nearly a normal crop of both corn and oats and short crops in most of the neighboring states. The southern states were in the greatest need of feed grain as they had a light crop the year before and an exceptionally small crop of corn in 1930.

Figure 14 shows the change in directional movement of the oat shipments. In response to the shortage in the South, a marked increase occurred in shipments to the southern markets from each of the counties. Pocahontas showed the largest volume and Story next, with 26 and 11 percent, respectively. Note that a large part of the shipments go directly to feeders in states like Arkansas, Tennessee, Missouri and Oklahoma. This large volume of shipments to the South reduces the amount going to the eastern terminals.

Although the movement into Iowa's deficit areas was not as large as in the 1927-28 season, it shows the effects of the short feed crop. Considering the shortage of feed grains to the West one would expect a considerable movement in this direction, but there were few shipments to the western states. The large movement of corn to the western states would indicate that the oat crop there was sufficient to take care of the local needs.

A number of results may be noted from a study of these 3 years of oat movement. First, certain stations or areas are much more favorably located with respect to certain outlets. Kossuth has much better access to the deficit area of northeast

Iowa than any of the other counties. Second, Iowa's largest oat market is found within the state. In each year and for each of the counties studied Cedar Rapids receives the largest volume of oats. Third, each year presents a different set of demand conditions which may change the direction of grain movement from that of the preceding year. The difference between a net profit or less to the individual elevator operator in the country may be the result of his alertness to these changing demand conditions.

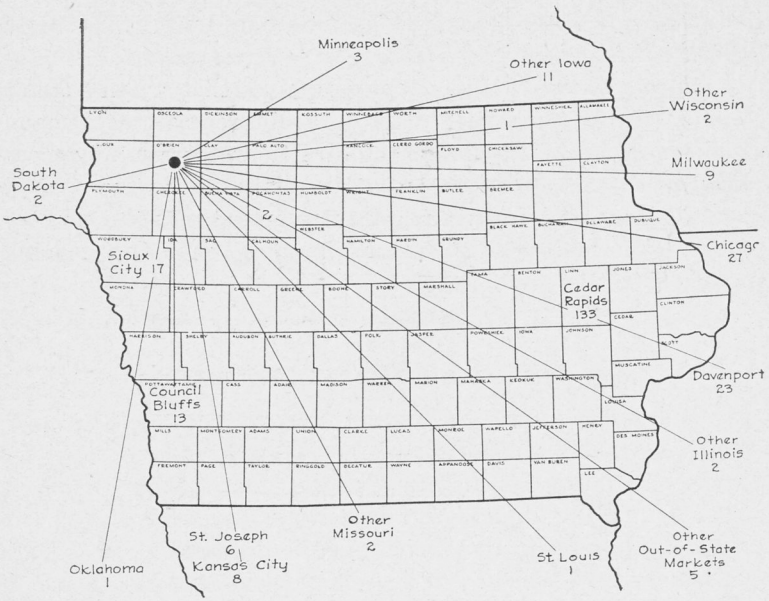


Fig. 14. Market destination of oats shipped from selected counties for the crop year 1930-31. O'Brien County.

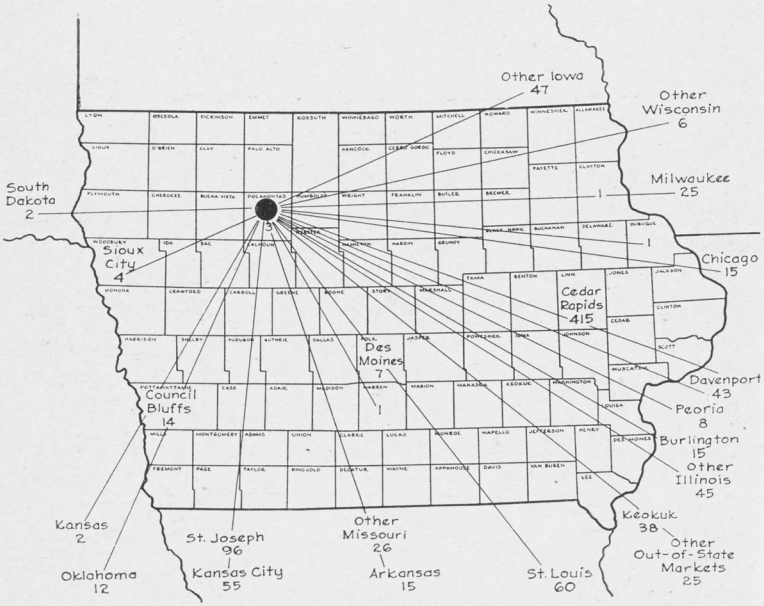


Fig. 14 (Cont.). Pocahontas County.

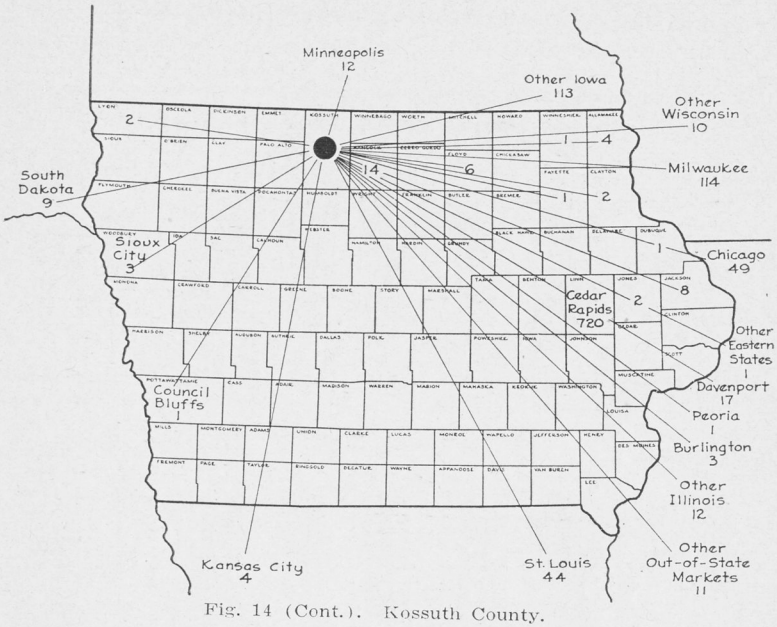


Fig. 14 (Cont.). Kossuth County.

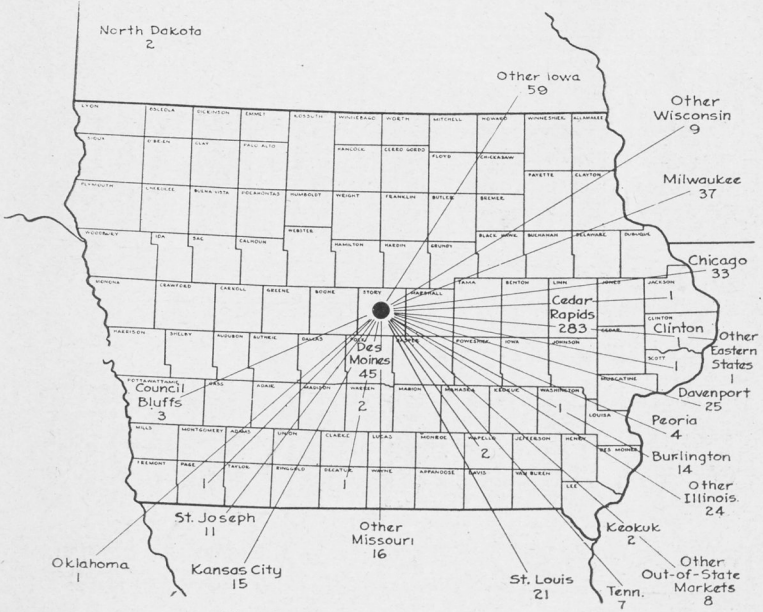


Fig. 14 (Cont.). Story County.

TABLE 4. OAT PRODUCTION AND SHIPMENTS BY AREAS.

	Total prod. of the area (thousand bushels)	Percent area prod. is of state production	TotalR.R. shipments of the area (thousand bushels)	Percent shipments are of total production	Total state shipments in carloads	Total area shipments in carloads	Percent area shipments are of state shipments
Western Cash Area No. 1							
1924-1925	5,093	2.2	832	16.3	34,556	378	1.1
1925-1926	5,351	2.2	462	8.6	29,652	210	.7
1926-1927	5,190	2.6	803	15.5	23,321	365	1.6
1927-1928	4,971	2.6	682	13.7	27,872	310	1.1
1928-1929	6,555	2.8	763	11.6	28,940	347	1.2
1929-1930	5,806	2.8	955	16.4	27,343	434	1.6
1930-1931	6,191	2.7	398	5.8	18,767	181	1.0
1931-1932	5,575	3.0	132	2.4	12,535	60	.5
Average	5,592	2.6	628	11.3	25,373	286	1.1
Western Feeding Area No. 2							
1924-1925	29,103	12.4	5,914	20.3	34,556	2,688	7.8
1925-1926	28,069	11.5	2,790	9.9	29,652	1,268	4.3
1926-1927	19,684	10.0	1,764	9,0	23,321	802	3.4
1927-1928	26,307	13.7	5,489	20.9	27,872	2,495	9.0
1928-1929	30,132	13.1	4,629	15.4	28,940	2,104	7.3
1929-1930	28,861	13.8	4,745	16.4	27,343	2,157	7.9
1930-1931	29,661	12.9	2,013	6.8	18,767	915	4.9
1931-1932	23,511	12.5	458	1.9	12,535	208	1.7
Average	26,916	12.5	3,475	12.6	25,373	1580	5.8
Northern Cash Area No. 3							
1924-1925	46,515	19.8	27,456	59.0	34,556	12,480	36.1
1925-1926	43,964	18.0	23,362	53.1	29,652	10,619	35.8
1926-1927	35,913	18.3	17,919	49.8	23,321	8,145	34.9
1927-1928	35,212	18.4	20,009	56.8	27,872	9,095	32.6
1928-1929	38,931	16.9	18,700	48.0	28,940	8,500	29.4
1929-1930	40,441	19.3	20,390	50.4	27,343	9,268	33.9
1930-1931	40,136	17.5	16,038	40.0	18,767	7,290	38.8
1931-1932	33,229	17.6	10,604	31.9	12,535	4,820	38.5
Average	39,293	18.2	19,310	48.6	25,373	8,777	35.0
Central Cash Area No. 4							
1924-1925	48,499	20.6	25,485	52.5	34,556	11,584	33.5
1925-1926	46,425	19.1	20,689	44.6	29,652	9,404	31.7
1926-1927	38,885	19.8	18,249	46.9	23,321	8,295	35.6
1927-1928	43,353	22.6	25,335	58.4	27,872	11,516	41.3
1928-1929	49,622	21.5	26,666	53.7	28,940	12,121	41.9
1929-1930	46,731	22.3	23,949	51.2	27,343	10,886	39.8
1930-1931	46,369	20.2	16,128	34.8	18,767	7,331	39.1
1931-1932	39,841	21.1	13,886	34.8	12,535	6,312	50.4
Average	44,966	20.9	21,298	47.1	25,373	9,681	39.2

TABLE 4—(Continued). OAT PRODUCTION AND SHIPMENTS BY AREAS.

	Total prod. of the area (thousand bushels)	Percent area prod. is of state production	Total R.R. shipments of the area (thousand bushels)	Percent shipments are of total production	Total state shipments in carloads	Total area shipments in carloads	Percent area shipments are of state shipments
Central Feeding Area No. 5							
1924-1925	28,962	12.3	9,225	31.9	34,556	4,193	12.1
1925-1926	31,999	13.1	9,834	30.7	29,652	4,470	15.1
1926-1927	26,136	13.3	6,552	25.1	23,321	2,978	12.8
1927-1928	26,096	13.6	6,994	26.8	27,872	3,179	11.4
1928-1929	27,583	11.9	6,884	25.0	28,940	3,129	10.8
1929-1930	26,180	12.5	6,116	23.4	27,343	2,780	10.2
1930-1931	27,711	12.1	3,824	13.8	18,767	1,738	9.3
1931-1932	21,643	11.5	1,615	7.5	12,535	734	5.9
Average	27,039	12.5	6,381	23.0	25,373	2,900	10.9
Eastern Feeding Area No. 6							
1924-1925	26,314	11.2	3,544	13.5	34,556	1,611	4.7
1925-1926	32,263	13.2	4,233	13.1	29,652	1,924	6.5
1926-1927	24,646	12.6	2,851	11.6	23,321	1,296	5.6
1927-1928	20,250	10.6	1,575	7.8	27,872	716	2.6
1928-1929	26,942	11.7	3,181	11.8	28,940	1,446	5.0
1929-1930	23,459	11.2	2,545	10.8	27,343	1,157	4.2
1930-1931	27,124	11.8	1,474	5.4	18,767	670	3.6
1931-1932	23,705	12.6	436	1.8	12,535	198	1.6
Average	25,588	11.9	2,480	9.5	25,373	1,127	4.2
Dairy Section Area No. 7							
1924-1925	31,702	13.5	2,215	7.0	34,556	1,007	2.9
1925-1926	35,810	14.7	2,979	8.3	29,652	1,354	4.6
1926-1927	27,753	14.1	2,079	7.5	23,321	945	4.1
1927-1928	23,023	12.0	803	3.5	27,872	365	1.3
1928-1929	29,628	12.8	1,034	3.5	28,940	470	1.6
1929-1930	24,846	11.8	814	3.3	27,343	370	1.4
1930-1931	31,850	13.9	1,021	3.2	18,767	464	2.5
1931-1932	22,876	12.1	132	.6	12,535	60	.5
Average	28,436	13.1	1,385	4.6	25,373	629	2.4
Southern Pasture Area No. 8							
1924-1925	16,081	6.8	1,353	8.4	34,556	615	1.8
1925-1926	19,834	8.1	887	4.5	29,652	403	1.4
1926-1927	17,980	9.2	1,089	6.1	23,321	495	2.1
1927-1928	12,159	6.4	431	3.5	27,872	196	.7
1928-1929	21,419	9.3	1,811	8.5	28,940	823	2.8
1929-1930	13,474	6.4	640	4.7	27,343	291	1.1
1930-1931	19,999	8.7	392	2.0	18,767	178	.9
1931-1932	18,165	9.6	315	1.7	12,535	143	1.1
Average	17,389	8.1	865	4.9	25,373	393	1.5

TABLE 5. PERCENTAGE OF IOWA'S COMMERCIAL OATS SHIPPED TO SPECIFIED MARKETS.

	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31
Chicago	21.8	15.1	7.8	15.1	12.9	11.8	8.9
Peoria	.3	.2	.3	.2	—	—	—
Milwaukee	10.3	6.2	10.4	6.4	6.3	8.3	5.3
Kansas City	5.5	8.9	1.2	1.2	3.5	4.1	3.2
St. Louis	8.4	6.0	2.1	2.6	5.4	4.6	5.4
St. Joseph	.2	.4	—	.2	.6	.8	3.7
Minneapolis	—	.1	2.8	1.0	.1	1.4	—
Omaha	.3	.2	.7	.4	—	—	—
Illinois	1.5	1.0	1.0	2.4	1.5	2.3	1.5
Wisconsin	1.0	1.1	.7	2.0	1.0	.9	.8
Missouri	—	1.0	3.1	1.3	2.8	1.7	2.8
Kansas	.3	.6	—	—	—	—	—
South Dakota	—	.1	2.0	.1	—	—	—
Oklahoma	.6	.8	—	.2	.5	.6	.1
Texas	.4	1.5	—	—	—	—	—
Tennessee	—	.8	—	—	—	—	—
Other Out-of-state markets	2.7	4.1	4.2	2.3	2.2	2.4	4.8
Cedar Rapids	24.1	32.8	40.2	43.1	41.9	41.2	45.3
Davenport	2.2	2.2	.4	1.6	2.0	3.1	3.9
Keokuk	.1	.5	.8	.6	.8	—	.6
Council Bluffs	10.1	9.5	9.8	5.1	7.6	5.4	4.5
Sioux City	.9	.7	1.5	2.1	1.1	.8	.9
Des Moines	4.6	2.4	2.0	2.6	3.5	2.9	1.7
Burlington	.2	.2	.3	.5	.5	.7	.8
Iowa*	1.1	.9	1.4	4.2	2.1	2.2	.2
Local Deficit Areas	3.4	2.7	7.3	4.8	3.7	4.8	5.6

*These oat shipments go to Iowa's primary markets but we were unable to designate the individual markets.

TABLE 6. DIRECTIONAL MOVEMENT OF IOWA'S COMMERCIAL OATS.

(In carloads and percentage)

	Out-of-state markets					Iowa's primary markets				Totals	
	East	South	Southwest	Northwest	Other out-of-state markets	Manufacturing centers	Western outlet	Southeastern	Local	Carload	Percent
	Chicago Peoria Illinois Milwaukee Wisconsin New York Eastern States	Kansas City St. Louis St. Joseph Missouri Arkansas Tennessee Southern States	Omaha Nebraska Kansas Oklahoma Texas Western States	Minneapolis Minnesota South Dakota North Dakota		Cedar Rapids Davenport Keokuk	Council Bluffs Sioux City	Des Moines Burlington Muscatine Walcott Ft. Dodge	Shipments into local deficit areas	Number of carloads for which destination data are available	Destination data are of total state shipments
1924-25	5,162	2,167	242	4	334	3,912	1,624	872	497	14,814	42.9
1925-26	3,153	2,388	424	28	459	4,754	1,444	391	364	13,405	45.2
1926-27	2,712	867	143	736	440	5,596	1,675	354	980	13,503	57.9
1927-28	5,439	1,139	162	284	322	9,371	1,567	1,420	1,001	20,705	74.3
1928-29	4,792	2,784	240	112	151	9,779	2,063	1,180	802	21,903	75.7
1929-30	5.350	2,647	233	322	152	10,098	1,555	1,027	1,203	22,587	82.6
1930-31	2,779	2,422	127	113	140	7,701	881	429	862	15,454	82.3
	In percentage										
1924-25	34.8	14.6	1.6	——	2.3	26.4	11.0	5.9	3.4		
1925-26	23.5	17.8	3.2	.2	3.4	35.5	10.8	2.9	2.7		
1926-27	20.1	6.4	1.1	5.5	3.3	41.4	12.4	2.6	7.3		
1927-28	26.3	5.5	.8	1.4	1.6	45.3	7.6	6.9	4.8		
1928-29	21.9	12.7	1.1	.5	.7	44.7	9.4	5.4	3.7		
1929-30	23.6	11.8	1.2	1.4	.7	44.6	6.9	4.5	5.3		
1930-31	18.0	15.7	.8	.7	.9	49.8	5.7	2.8	5.6		
Average	24.0	12.1	1.4	1.4	1.8	41.1	9.1	4.4	4.7		

TABLE 7. MARKET MOVEMENT OF OATS SHIPPED FROM IOWA'S PRIMARY MARKETS.

(In percentage)

	1927-28	1928-29	1929-30	1930-31
Chicago	30.8	20.3	12.9	7.6
Peoria	.8	9.1	3.6	1.3
Milwaukee	2.9	3.3	6.6	2.9
Kansas City	1.7	2.6	2.8	3.4
St. Louis	28.6	21.6	27.5	30.5
St. Joseph	——	——	.3	.3
Minneapolis	1.5	.8	——	——
Omaha	1.0	2.2	3.1	1.7
Illinois	3.8	2.2	1.7	2.3
Wisconsin	6.4	7.2	7.7	6.5
Missouri	.4	1.2	2.6	6.9
Nebraska	1.0	1.4	.1	.4
Kansas	.1	.9	.9	1.8
South Dakota	.2	.7	——	——
Oklahoma	2.1	5.4	6.8	4.3
Arkansas	1.1	.6	1.6	1.9
Texas	.3	5.7	2.4	2.2
Tennessee	4.5	3.3	1.4	1.5
Eastern States	.8	1.6	1.1	1.8
Western States	.3	.8	.1	——
Southern States	.5	.9	3.6	7.4
Other out-of-state markets	5.0	5.0	6.0	13.6
Cedar Rapids	.1	.1	.1	.1
Davenport	——	.1	.1	.2
Des Moines	.1	.2	——	.1
Council Bluffs	4.2	2.0	5.5	——
Burlington	——	——	.2	——
Muscatine	.1	——	——	.1
Local Deficit Areas	1.5	.8	1.1	.9

TABLE 8. DIRECTIONAL MOVEMENT OF OATS SHIPPED FROM IOWA'S PRIMARY MARKETS.

(In carloads and percentage)

	Out-of-state markets					Iowa's primary markets				Total		
	East	South	Southwest	Northwest	Other out-of-state markets	Manufacturing centers	Western outlet	Southeastern	Local	Carload		Percent
	Chicago Peoria Illinois Milwaukee Wisconsin New York Eastern States	Kansas City St. Louis St. Joseph Missouri Arkansas Tennessee Southern States	Omaha Nebraska Kansas Oklahoma Texas Western States	Minneapolis Minnesota South Dakota North Dakota		Cedar Rapids Davenport Keokuk	Council Bluffs Sioux City	Des Moines Burlington Muscatine Walcott Ft. Dodge	Shipments into local deficit areas	Number of carloads for which we have destination data	Total carloadings at the primary markets	Destination data are of total shipments
1927-28	3,822	3,101	392	158	422	10	353	17	124	8,399	13,149	63.9
1928-29	2,030	1,402	764	71	234	13	92	10	37	4,653	5,312	87.6
1929-30	2,248	2,657	894	4	401	13	369	16	74	6,676	7,251	92.1
1930-31	1,033	2,401	482	10	628	14		10	43	4,621	5,609	82.4
	In Percentage											
1927-28	45.5	36.9	4.7	1.9	5.0	.1	4.2	.2	1.5			
1928-29	43.6	30.1	16.4	1.5	5.0	.3	2.0	.2	.8			
1929-30	33.7	39.8	13.4	.1	6.0	.1	5.5	.2	1.1			
1930-31	22.4	52.0	10.4	.2	13.6	.3		.2	.9			
Average	36.3	39.7	11.2	.9	7.4	.2	2.9	.2	1.1			

TABLE 9. DIRECTIONAL MOVEMENT OF IOWA'S COMMERCIAL OATS BY AREAS.

(In carloads and percentage)

	East	South	Southwest	Northwest	Others	Iowa manufacturing cities	Iowa western outlet	Reship	Local	Total		
Year	Chicago Peoria Milwaukee Ill., Wisc. & Eastern	Kansas City St. Louis St. Joseph Missouri & Southern	Omaha and S.W. States	Minneapolis and N.W. States	Outside	Cedar Rapids Davenport Keokuk	Council Bluffs Sioux City	Des Moines Burlington Muscatine	Deficit	Total showing destination	Total market movement	Percent dest. data is of total movement
Western Feeding												
1926-27	10	54	19	7	6	63	199	1	4	363	802	45.3
1927-28	336	149	42	54	26	449	732	34	197	2,019	2,495	80.9
1928-29	122	85	30	26	3	196	631	32	17	1,142	2,104	54.3
1929-30	165	121	30	57	17	230	545	32	27	1,224	2,157	56.7
1930-31	47	60	21	3	10	105	225	1	6	478	915	52.2
						In percentage						
1926-27	2.8	14.9	5.2	1.9	1.6	17.4	54.8	.3	1.1	100		
1927-28	16.6	7.4	2.1	2.7	1.3	22.2	36.2	1.7	9.8	100		
1928 29	10.7	7.4	2.6	2.3	.3	17.2	55.2	2.8	1.5	100		
1929-30	13.5	9.9	2.4	4.7	1.4	18.8	44.5	2.6	2.2	100		
1930-31	9.8	12.6	4.4	.6	2.1	22.0	47.1	.2	1.2	100		
Average	10.8	10.4	3.3	2.4	1.3	19.5	47.6	1.5	3.2	100		
Northern Cash												
1926-27	1,046	40	31	540	15	3,131	254	24	241	5,322	8,145	65.3
1927-28	1,861	224	41	148	32	3,858	176	127	475	6,942	9,095	76.3
1928-29	1,531	635	48	43	13	4,158	112	80	177	6,797	8,500	80.0
1929-30	1,943	728	73	192	64	4,893	72	120	306	8,391	9,268	90.5
1930-31	991	913	49	69	56	4,382	57	36	136	6,689	7,290	91.8
						In percentage						
1926-27	19.6	.8	.6	10.1	.3	58.8	4.8	.5	4.5	100		
1927-28	26.8	3.2	.6	2.1	.5	55.6	2.5	1.8	6.9	100		
1928-29	22.5	9.3	.7	.6	.2	61.2	1.7	1.2	2.6	100		
1929-30	23.2	8.7	.9	2.3	.8	58.3	.8	1.4	3.6	100		
1930-31	14.8	13.6	.7	1.0	.8	65.5	.8	.5	2.3	100		
Average	21.4	7.1	.7	3.2	.5	59.9	2.1	1.1	4.0	100		

Year	East	South	Southwest	Northwest	Others	Iowa manufacturing cities	Iowa western outlet	Reship	Local	Total		
	Chicago Peoria Milwaukee Ill., Wisc. & Eastern	Kansas City St. Louis St. Joseph Missouri & Southern	Omaha and S.W. States	Minneapolis and N.W. States	Outside	Cedar Rapids Davenport Keokuk	Council Bluffs Sioux City	Des Moines Burlington Muscatine	Deficit	Total showing destination	Total market movement	Percent dest. data is of total movement
Central Cash												
1926-27	739	137	74	119	159	1,598	823	249	27	3,925	8,295	47.3
1927-28	2,274	377	68	36	167	3,625	389	428	498	7,862	11,516	68.3
1928-29	1,826	721	85	2	66	4,132	912	636	179	8,559	12,121	70.6
1929-30	2,064	994	37	12	53	3,917	536	570	92	8,275	10,886	75.2
1930-31	1,094	947	43	14	66	2,430	443	323	37	5,397	7,331	73.6
					In percentage							
1926-27	18.8	3.5	1.9	3.0	4.1	40.7	21.0	6.3	.7	100		
1927-28	28.9	4.8	.9	.5	2.1	46.1	5.0	5.4	6.3	100		
1928-29	21.3	8.4	1.0	.0	.8	48.3	10.7	7.4	2.1	100		
1929-30	24.9	12.0	.5	.1	.7	47.3	6.5	6.9	1.1	100		
1930-31	20.3	17.5	.8	.3	1.2	45.0	8.2	6.0	.7	100		
Average	22.8	9.2	1.0	.8	1.8	45.5	10.3	6.4	2.2	100		
Central Feeding												
1926-27	619	167	4	22	68	1,081	2	15	23	2,001	2,978	67.2
1927-28	715	208	5	21	61	1,446	2	25	111	2,594	3,179	81.6
1928-29	846	372	4	14	51	1,393	42	36	65	2,823	3,129	89.2
1929-30	738	330	12	28	4	1,346	39	37	70	2,604	2,780	93.7
1930-31	421	208	4	—	6	875	28	15	43	1,600	1,738	92.1
					In percentage							
1926-27	31.0	8.3	.2	1.1	3.4	54.0	.1	.8	1.1	100		
1927-28	27.6	8.0	.2	.8	2.4	55.7	.1	.9	4.3	100		
1928-29	30.0	13.2	.1	.5	1.8	49.3	1.5	1.3	2.3	100		
1929-30	28.3	12.7	.5	1.1	.1	51.7	1.5	1.4	2.7	100		
1930-31	26.3	13.0	.2	—	.4	54.7	1.8	.9	2.7	100		
Average	28.6	11.0	.2	.7	1.6	53.01	1.0	1.1	2.6	100		

TABLE 10. MONTHLY SHIPMENTS OF IOWA'S COMMERCIAL OATS.

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
						Carloads							
1924-25	7,521	5,538	4,328	1,424	2,418	2,653	1,319	1,283	1,095	1,792	1,664	3,521	34,556
1925-26	8,031	2,769	2,917	1,508	2,082	2,003	1,536	1,381	1,645	1,552	1,998	2,230	29,652
1926-27	5,274	2,106	3,020	1,320	2,044	1,814	1,531	1,477	1,033	1,208	1,374	1,020	23,321
1927-28	6,483	2,911	2,856	1,523	1,804	2,180	2,041	2,963	1,689	1,728	872	822	27,872
1928-29	4,666	2,712	2,913	1,825	2,248	2,287	1,895	1,621	1,654	2,085	1,926	3,108	28,940
1929-30	8,122	3,108	2,380	1,193	1,322	1,115	1,597	1,766	1,899	1,546	1,364	1,931	27,343
1930-31	5,647	1,897	1,600	643	847	734	1,135	1,182	1,562	854	737	1,929	18,767
1931-32	1,718	1,290	1,288	808	1,075	805	1,164	1,250	1,059	531	496	1,051	12,535
Average	5,933	2,791	2,663	1,280	1,730	1,699	1,527	1,615	1,454	1,425	1,304	1,952	25,373
						In percentage							
1924-25	21.8	16.0	12.5	4.1	7.0	7.7	3.8	3.7	3.2	5.2	4.8	10.2	100
1925-26	27.1	9.3	9.8	5.1	7.0	6.8	5.2	4.7	5.6	5.2	6.7	7.5	100
1926-27	22.6	9.0	12.9	5.7	8.8	7.8	6.6	6.3	4.4	5.6	5.9	4.4	100
1927-28	23.4	10.4	10.2	5.5	6.5	7.8	7.3	10.6	6.1	6.2	3.1	2.9	100
1928-29	16.1	9.4	10.1	6.3	7.8	7.9	6.5	5.6	5.7	7.2	6.7	10.7	100
1929-30	29.7	11.4	8.7	4.4	4.8	4.1	5.8	6.5	6.9	5.6	5.0	7.1	100
1930-31	30.2	10.1	8.5	3.4	4.5	3.9	6.0	6.3	8.3	4.6	3.9	10.3	100
1931-32	13.7	10.3	10.3	6.4	8.6	6.4	9.3	10.0	8.4	4.2	4.0	8.4	100
Average	23.1	10.7	10.4	5.1	6.9	6.5	6.3	6.7	6.1	5.5	5.0	7.7	100
						Accumulated percent							
1924-25	21.8	37.8	50.3	54.4	61.4	69.1	72.9	76.6	79.8	85.0	89.8	100	
1925-26	27.1	36.4	46.2	51.3	58.3	65.1	70.3	75.0	80.6	85.8	92.5	100	
1926-27	22.6	31.6	44.5	50.2	59.0	66.8	73.4	79.7	84.1	89.7	95.6	100	
1927-28	23.4	33.8	44.0	49.5	56.0	63.8	71.7	81.7	87.8	94.0	97.1	100	
1928-29	16.1	25.5	35.6	41.9	49.7	57.6	64.1	69.7	75.4	82.6	89.3	100	
1929-30	29.7	41.1	49.8	54.2	59.0	63.1	68.9	75.4	82.3	87.9	92.9	100	
1930-31	30.2	40.3	48.8	52.2	56.7	60.6	66.6	72.9	81.2	85.8	89.7	100	
1931-32	13.7	24.0	34.3	40.7	49.3	55.7	65.0	75.0	83.4	87.6	91.6	100	
Average	23.1	33.8	44.2	49.3	56.2	62.7	69.1	75.5	81.8	87.3	92.3	100	

TABLE 11. TYPE OF MARKET TO WHICH IOWA'S COMMERCIAL OATS ARE SHIPPED.

(In carloads and percentage)

	Out-of-state markets		Iowa's primary markets			Total		
	Terminals	Feeder markets	Manufacturing centers	Reshipment centers	Local movement to deficit areas	Carloads for which destination is given	State shipments in carloads	Percent destination data are of total shipments
	Chicago Peoria Milwaukee Kansas City St. Louis St. Joseph Minneapolis Omaha	Illinois Wisconsin Missouri Minnesota Nebraska Kansas South Dakota North Dakota Other States	Cedar Rapids Davenport Keokuk Ft. Dodge	Des Moines Council Bluffs Sioux City Burlington Muscatine Walcott	Deficit producing areas of the state			
1924-25	6,941	968	3,912	2,496	497	14,814	34,556	42.9
1925-26	4,986	1,466	4,754	1,835	364	13,405	29,652	45.2
1926-27	3,404	1,494	5,596	2,029	980	13,503	23,321	57.9
1927-28	5,608	1,738	9,997	2,361	1,001	20,705	27,872	74.3
1928-29	6,485	1,594	9,965	3,057	802	21,903	28,940	75.7
1929-30	7,115	1,589	10,167	2,513	1,203	22,587	27,343	82.6
1930-31	4,249	1,332	7,701	1,310	862	15,454	18,767	82.3
			In percentage					
1924-25	46.9	6.6	26.3	16.8	3.4			
1925-26	37.2	10.9	35.5	13.7	2.7			
1926-27	25.2	11.1	41.4	15.1	7.3			
1927-28	27.1	8.4	48.3	11.4	4.8			
1928-29	29.6	7.3	45.5	13.9	3.7			
1929-30	31.5	7.0	44.7	11.9	4.8			
1930-31	27.5	8.6	49.8	8.5	5.6			
Average	32.1	8.6	41.6	13.0	4.6			

TABLE 12 TYPE OF MARKET TO WHICH IOWA'S COMMERCIAL OATS ARE SHIPPED, BY AREAS.

(In carloads and percentage)

Year	Out-of-state markets		Iowa's primary markets			Total
	Terminals	Feeder markets	Iowa's manufacturing centers	Iowa's reshipment centers	Iowa's deficit area	
Western Feeding Area No. 2			In carloads			
1926-27	24	72	63	200	4	363
1927-28	407	200	449	766	197	2,019
1928-29	195	71	196	663	17	1,142
1929-30	319	71	230	577	27	1,224
1930-31	102	39	105	226	6	478
			In percentage			
1926-27	6.6	19.8	17.4	55.1	1.1	100
1927-28	20.2	9.9	22.2	37.9	9.8	100
1928-29	17.1	6.2	17.2	58.0	1.5	100
1929-30	26.1	5.8	18.8	47.1	2.2	100
1930-31	21.3	8.2	22.0	47.3	1.2	100
Average	18.3	10.0	19.5	49.1	3.2	100
Northern Cash Area No. 3			In carloads			
1926-27	1,301	371	3,131	278	241	5,322
1927-28	1,852	454	3,858	303	475	6,942
1928-29	1,915	355	4,158	192	177	6,797
1929-30	2,472	528	4,893	192	306	8,391
1930-31	1,618	460	4,382	93	136	6,689
			In percentage			
1926-27	24.5	7.0	58.8	5.2	4.5	100
1927-28	26.7	6.5	55.6	4.4	6.8	100
1928-29	28.2	5.2	61.2	2.8	2.6	100
1929-30	29.5	6.3	58.3	2.3	3.6	100
1930-31	24.2	6.9	65.5	1.4	2.0	100
Average	26.6	6.4	59.9	3.2	3.9	100

(Continued on page 387)

TABLE 12. TYPE OF MARKET TO WHICH IOWA'S COMMERCIAL OATS ARE SHIPPED, BY AREAS. (Cont'd)

(In carloads and percentage)

Year	Out-of-state markets		Iowa's primary markets			Total
	Terminals	Feeder markets	Iowa's manufacturing centers	Iowa's reshipment centers	Iowa's deficit area	
Central Cash Area No. 4			In Carloads			
1926-27	838	390	1,586	1,084	27	3,925
1927-28	2,135	787	3,628	814	498	7,862
1928-29	2,378	322	4,079	1,601	179	8,559
1929-30	2,698	462	3,931	1,092	92	8,275
1930-31	1,625	539	2,481	715	37	5,397
			In percentage			
1926-27	21.4	9.9	40.4	27.6	.7	100
1927-28	27.2	10.0	46.1	10.4	6.3	100
1928-29	27.8	3.8	47.6	18.7	2.1	100
1929-30	32.6	5.6	47.5	13.2	1.1	100
1930-31	30.1	10.0	46.0	13.2	.7	100
Average	27.8	7.9	45.5	16.6	2.2	100
Central Feeding area No. 5			In carloads			
1926-27	806	74	1,081	17	23	2,001
1927-28	898	112	1,446	27	111	2,594
1928-29	1,173	114	1,393	78	65	2,823
1929-30	1,043	69	1,346	76	70	2,604
1930-31	574	65	875	43	43	1,600
			In percentage			
1926-27	40.3	3.7	54.1	.8	1.1	100
1927-28	34.6	4.3	55.8	1.0	4.3	100
1928-29	41.6	4.0	49.3	2.8	2.3	100
1929-30	40.1	2.6	51.7	2.9	2.7	100
1930-31	33.9	4.1	54.6	2.7	2.7	100
Average	38.5	3.7	53.1	2.0	2.6	100

TABLE 13. TYPE OF MARKET SHIPMENTS FROM IOWA'S PRIMARY MARKETS.

(In carloads and percentage)

	Out-of-state markets		Iowa's primary markets			Totals		
						Carloads		Percent
	Terminals	Feeder markets	Manufacturing centers	Re-shipment markets	Local			
	Chicago Peoria Milwaukee Kansas City St. Louis St. Joseph Omaha Minneapolis	Illinois Wisconsin Missouri Minnesota Nebraska Kansas South Dakota North Dakota and others	Cedar Rapids Davenport Keokuk	Des Moines Council Bluffs Sioux City Burlington Muscatine	County to county movement	Number of carloads for which destination is shown	Total carloads shipped from the primary markets	destination data is of total shipments
				In carloads				
1927-28	5,650	2,245	10	370	124	8,399	13,149	63.9
1928-29	2,783	1,718	13	102	37	4,653	5,312	87.6
1929-30	3,798	2,406	13	385	74	6,676	7,251	92.1
1930-31	2,200	2,354	14	10	43	4,621	5,609	82.4
				In percentage				
1927-28	67.3	26.7	.1	4.4	1.5			
1928-29	59.8	36.8	.3	2.2	.8			
1929-30	56.9	36.0	.1	5.8	1.1			
1930-31	47.6	50.9	.3	.2	.9			
Average	57.9	37.6	.2	3.2	1.1			

TABLE 14. DIRECTIONAL DESTINATION OF OATS FROM SELECTED IOWA COUNTIES.

(In carloads and percentage)

Year	Out-of-state markets				Iowa markets				Totals		
	East	South	West	Others	Mfg. centers	Western outlet	Southern outlet	Local	Carloads		Percent
	Chicago Peoria Illinois Mil., Wis. New York E. States	Kansas City St. Louis St. Joseph Missouri Ark., Tenn. So. States	Omaha, Nebr., Kans. Texas, Mpls, Minnesota Dak's. Okla. W. States	All other out of state	Cedar Rapids Keokuk Davenport	Council Bluffs Sioux City	Des Moines Burlington Muscatine	County to county movement	Number showing destination	Total for the county	Destination data are of total loadings
O'Brien County					In carloads						
1926-27	8	2	49	1	65	36	2	26	189	334	56.6
1927-28	242	9	3	1	160	99	—	34	548	670	81.8
1928-29	67	11	4	13	92	53	—	1	241	463	52.0
1929-30	97	16	23	2	166	39	—	7	350	572	61.2
1930-31	40	17	6	5	156	30	—	14	268	368	72.8
					In percentage						
1926-27	4.2	1.1	25.9	.5	34.4	19.0	1.1	13.8			
1927-28	44.2	1.6	.5	.2	29.2	18.1	—	6.2			
1928-29	27.8	4.6	1.6	5.4	38.2	22.0	—	.4			
1929-30	27.7	4.6	6.6	.6	47.4	11.1	—	2.0			
1930-31	14.9	6.3	2.2	1.9	58.3	11.2	—	5.2			
Average	23.8	3.6	7.4	1.7	41.5	16.3	.2	5.5			

TABLE 14—(Continued). DIRECTIONAL DESTINATION OF OATS FROM SELECTED IOWA COUNTIES

Year	Out-of-state markets				Iowa markets				Totals		
	East	South	West	Others	Mfg. centers	Western outlet	Southern outlet	Local	Carloads		Percent
	Chicago Peoria Illinois Mil., Wis. New York E. States	Kansas City St. Louis St. Joseph Missouri Ark., Tenn. So. States	Omaha, Nebr., Kans. Texas, Mpls, Minnesota Dak's. Okla. W. States	All other out of state	Cedar Rapids Keokuk Davenport	Council Bluffs Sioux City	Des Moines Burlington Muscatine	County to county movement	Number showing destination	Total for the county	Destination data are of total loadings
Pocahontas County					In carloads						
1926-27	117	11	70	—	405	76	8	39	726	969	74.9
1927-28	223	64	10	1	545	24	91	50	1,008	1,134	88.9
1928-29	150	135	10	5	640	30	25	30	1,025	1,173	87.4
1929-30	217	176	22	20	681	20	52	62	1,250	1,322	94.6
1930-31	99	252	16	25	497	18	22	52	981	1,012	96.9
					In percentage						
1926-27	16.1	1.5	9.6	—	55.8	10.5	1.1	5.4			
1927-28	22.1	6.3	1.0	.1	54.1	2.4	9.0	5.0			
1928-29	14.6	13.2	1.0	.5	62.5	2.9	2.4	2.9			
1929-30	17.3	14.1	1.8	1.6	54.4	1.6	4.2	5.0			
1930-31	10.1	25.7	1.6	2.5	50.8	1.8	2.2	5.3			
Average	16.0	12.2	3.0	.9	55.5	3.8	3.8	4.8			
Kossuth County					In carloads						
1926-27	233	4	179	5	601	1	8	163	1,194	1,416	84.3
1927-28	265	18	53	19	752	3	—	187	1,297	1,421	91.3
1928-29	213	19	6	2	844	—	9	119	1,212	1,341	90.4
1929 30	318	21	46	6	802	—	2	163	1,358	1,374	98.8
1930-31	187	48	21	11	738	1	3	156	1,165	1,197	97.3
					In percentage						
1926-27	19.5	.3	15.0	.4	50.3	.1	.7	13.7			
1927-28	20.4	1.4	4.1	1.5	58.0	.2	—	14.4			
1928-29	17.6	1.6	.5	.2	69.6	—	.7	9.8			
1929-30	23.4	1.5	3.4	.4	59.1	—	.2	12.0			
1930-31	16.1	4.1	1.8	.9	63.3	.1	.3	13.4			
Average	19.4	1.8	5.0	.7	60.1	.1	.4	12.7			

Story County

In carloads

1926-27	118	18	2	34	246	35	59	46	558	732	76.2
1927-28	237	22	—	50	474	—	99	41	923	972	95.0
1928-29	138	68	2	18	621	2	85	70	1,004	1,044	96.2
1929-30	179	80	1	6	537	2	88	83	976	976	100.0
1930-31	108	70	3	8	311	3	59	68	630	639	98.6

In percentage

1926-27	21.1	3.2	.4	6.1	44.1	6.3	10.6	8.2			
1927-28	25.7	2.4	—	5.4	51.4	—	10.7	4.4			
1928-29	13.7	6.8	.2	1.8	61.8	.2	8.5	7.0			
1929-30	18.3	8.2	.1	.6	55.1	.2	9.0	8.5			
1930-31	17.1	11.1	.5	1.3	49.3	.5	9.4	10.8			
Average	19.2	6.8	.2	3.0	52.3	1.4	9.6	7.8			

Butler County

In carloads

1926-27	46	—	2	—	116	—	—	22	186	298	62.4
1927-28	94	—	—	1	132	—	—	16	243	258	94.2
1928-29	73	5	—	2	91	—	—	26	197	260	75.8
1929-39	53	13	4	—	91	—	—	34	195	245	79.6
1930-31	42	3	—	1	56	—	2	22	126	168	75.0

In percentage

1926-27	24.7	—	1.1	—	62.4	—	—	11.8			
1927-28	38.7	—	—	.4	54.3	—	—	6.6			
1928-29	37.1	2.5	—	1.0	46.2	—	—	13.2			
1929-30	27.2	6.7	2.0	—	46.7	—	—	17.4			
1930-31	33.3	2.4	—	.8	44.4	—	1.6	17.5			
Average	32.2	2.3	.6	.4	50.8		.3	13.3			